APR 26 1926

PAPER TRADE JOURNAL

Vol. LXXXII, No. 16 APRIL 22, 1926 Per annum, $4.00 Per copy, 10 cents

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EVERY DESCRIPTION

Entered as second class matter August 13, 1925, at the Post Office at East Stroudsburg, Pa., under Act of Congress of March 3, 1879. ESTABLISHED 1872 FIFTY-FOURTH YEAR Published every Thursday by the Lockwood Trade Journal Co., at 34 N. Crystal St., E. Stroudsburg, Pa. EXECUTIVE AND EDITORIAL OFFICES: 10 EAST 39th STREET, NEW YORK CITY. CHICAGO: 123 West Madison St., Chicago, Ill.

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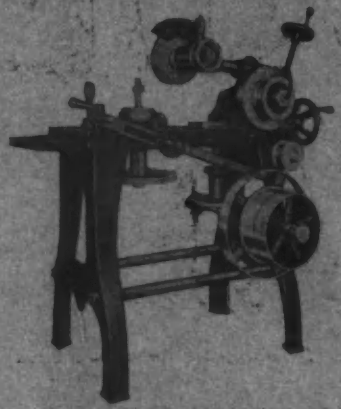
Over 800

Standard Koegel Patent Universal Slitter and Circular Knife Grinders are in the paper and pulp mills of the United States and Canada. What greater evidence could be offered for the universal service this grinder renders?



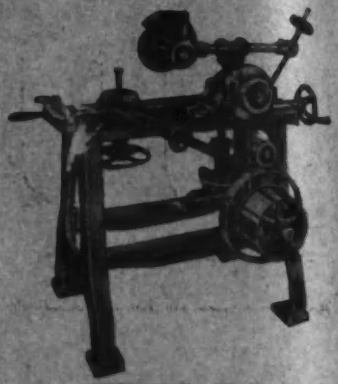
THE STANDARD
Capacity—8½-inch Diam. Slitters

Specifications: Floor space, 27" x 42"; speed of spindle, 53 revolutions; driving pulley, 9"x2½"—speed, 400 revolutions; emery wheel, 7"x½"—speed, 3,000 revolutions; weight, about 425 lbs.

For Greater Capacity

The Koegel No. 4 Patent Universal Slitter and Circular Knife Grinder is built for Slitters up to 16" in diameter. In mills where larger diameter knives and slitters are used, 150 are in service.

Here are the specifications: Floor space, 32"x52"; speed of spindle, 55 revolutions; driving pulley, 10"x2½"—speed, 400 revolutions; emery wheel, 8"x½"—speed, 3,000 revolutions; weight, about 525 lbs.



THE KOEGEL N. 4
Capacity—16-inch Diam. Slitters

CHAS. KOEGEL'S SONS, Inc.

Slitters and Specialties

HOLYOKE MASSACHUSETTS

In Massachusetts
31 PAPER MILLS
USE
FITCHBURG "NEW TYPE" SCREEN PLATES

(Patented)

WHY?

We are ready to demonstrate in your own mill, without any obligation, their *greater screening capacity* and *cleaner screening*

FITCHBURG SCREEN PLATE COMPANY

FITCHBURG, MASS.

ESTABLISHED IN 1872

PAPER TRADE JOURNAL

With Which Is Combined

PAPER

Vol. LXXXII, No. 16 Thursday, April 22, 1926

The Magazine of the Paper Industry

Kalamazoo Paper Co. Starts New Machine

New 168 Inch Barton & Fales Fourdrinier Is Installed In Mill No. 3 At Cost of About $1,000,000—All The Most Up-to-date Auxiliary Equipment Is Installed With The New Machine—New Fourdrinier Is Widest In Kalamazoo Valley District—Will Greatly Increase Company's Capacity

KALAMAZOO, Michigan, April 19, 1926.—The Kalamazoo Paper Company's 168 inch machine, the widest machine in the Kalamazoo valley district, is now in operation and running steadily. It has increased the total output of this concern to from 100 to over 150 tons daily.

The installation of this new unit was made in mill No. 3, the total expense involved in necessary construction and machinery being approximately $1,000,000.

The Fourdrinier machine proper is the product of Rice, Barton and Fales, Worcester, Mass. It has a maximum width of 168 inches, and produces a sheet that trims about 156 inches. It is equipped with twenty-six driers, each four feet in diameter. The drying capacity is automatically governed by an automatic control, which can be regulated through weights to suit the grade and weight of paper being produced. The two calendars, installed as units of the machine were made by the Farrel Foundry and Machine Company, Ansonia, Conn.

The main drive for the big machine is located in the basement and consists of a General Electric 300 horse power variable speed motor and a 200 horse power constant speed motor, same construction. A taximeter attached to the motor shaft manipulated by means of a push button governs the speed of the machine from 100 to 600 feet a minute. The control on the driers makes it possible to start the whole drier unit on slow speed and then throw it into high speed with minimum danger of breaking the web of the paper. The machine calendars and winders are both driven by the variable speed motor propelling the machine. Rolls on the calendars are cooled by air, while the calendars are automatically oiled from a tank on each calendar, supplied by a pump in the basement, driven by a one horse power General Electric pump. The oil flows back by gravity to source of supply and can be used over and over again.

The great machine rope drive is guarded by heavy iron railings, making contact with it impossible.

In the beater room are two Jones "Majestic" jordans and four 2,000 pound Jones beaters. These beaters are driven in pairs by General Electric motors. Lenix drives, product of F. L. Smith & Co., New York, are installed on the pulleys, thus insuring at all times a maximum of drawing power from the belt lines. A single washer made by the Improved Machine Company is sufficient to furnish ample raw stock.

In the basement are the additional stock chests, rotaries, prepared stock chests and an interesting white water control made by tthe Kalamazoo Paper Company. This device acts as a save-all and economizes in the use of water as well. All water used in the mill is softened by a new system just installed and also passes through a battery of Norwood Engineering Company's filters.

In the finishing room are two 72 inch and two 92 inch cutters, equipped with Moore & White layboys. There is a monorail electric hoist, capable of handling rolls up to 3,000 pounds weight. Other equipment includes a Cameron rewinder and an 84 inch Smith & Winchester under-cut trimmer.

The boiler room has been more than doubled in size to permit of the installation of three 500 horse power Wickes boilers, which can operate safely at a 200 per cent rating. Each boiler is equipped with a Westinghouse under-feed stoker, while the coal is carried in an overhead hopper. This hopper is being extended to supply the three boilers installed when the mill was originally erected. All coal is handled from the bunkers by a clam bucket, operated on an electric monorail. A Clarage fan furnishes induced draught to the furnaces and carries the hot air and gasses through the economizers.

In the power house are a General Electric 2,500 k.w. turbine and two 500 k.w. turbines and elaborate switch board system. Boiler feed, vacuum feed and reciprocating pumps are installed to insure ample water supply.

Wood Utilization Committee To Meet April 28

WASHINGTON, D. C., April 21, 1926.—The National Committee on Wood Utilization will meet April 28 in the Department of Commerce building following the conference on April 27 of the Central Committee of Lumber Standards. Problems of paramount importance have been selected from the hundreds of suggestions received from the lumber industry and will be considered. In order to receive attention by the Committee, the proposed projects to be discussed must be of interest all along the line from the logger to the builder. They will, in other words, have a general appeal and not benefit any one group or branch of the industry.

The members of the Committee represent manufacturers, distributors and consumers interested in the handling and using of wood and wood products. Among the more important questions to come up for definite action are the marketing of short lengths, odd widths and odd lengths of lumber, small dimension stock and preserved wood. Various phases of important by-product industries such as wood chemicals, wood flour, charcoal will be considered. The pulp and paper industry will be represented by a special delegation, this alone being an important field of activity for the Committee to cover.

"Utilize wood and save our forests," is the slogan of the Committee. The result of its work will be to impart better knowledge of efficient wood utilization and wood using practices. Secretary Hoover is chairman of the Committee, and the Vice Chairman is Colonel Greeley, Chief Forester of the United States.

Philadelphia Paper Distribution Stimulated

Concentrated Efforts of Sales Forces Overcoming Many Obstacles—New Ideas in Direct Mail Advertising, Educational Sales Talks, and Other Means of Reaching Public, Freely Utilized—Livelier Demand for Fine Papers Experienced

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., April 19, 1926.—Effective sales campaigning on the part of distributors and co-operation of the mills in the stimulation of interest in paper stocks has been helpful in maintaining a fairly satisfactory business, despite the many obstacles which just now are factors for the retarding of paper distribution. These are not days for waiting for the buyer to come to the dealers. It is only by going hard after business that orders can be obtained and as this important feature of present day competitive paper dealing is being driven home, the paper houses are urgent in their demands that sales forces keep constantly enthused in seeking for purchasers. Realizing that this concentrated effort is essential, there is being put forth all the vigor and energy of mill men and dealers in the campaigns for the stimulation of business. New ideas in direct mail advertising, educational sales talks, broad circularizing of the trade and allies in the consuming industries by mill operators and distributors, and numerous other means of reaching the public and dealers, are now employed to revive a normal spring distribution. These sales factors are being supplemented by the energetic efforts of salesmen, and the heads of firms, who are now reaching the consumer by direct contact and street work, along with their representatives. And so, the pulmotor is being applied most effectively to offset the many drawbacks of unseasonal cold weather, cautiousness on the part of the buyer, and the tendency to hold off orders awaiting more definite trend of business.

Fine Paper Sales Improved

Though there is much room for improvement if the market for fine papers is to assume anywhere near normal proportion, the dealers are maintaining an attitude of satisfaction in the present livelier demand when their lot is compared with those in other industries. Resumption of many spring activities among the manufacturing and mercantile trades on seasonal schedule and the ever increasing demand for direct mail advertising has been reflected in increased orders for those lines of printers and publishers papers consumed in this class of trade. No tonnage orders of considerable mention are forthcoming, owing to the cautiousness of the consumer over the future, but the broadening of small orders bulks a volume of business more of the springtime type, and inquiries forecast even better times when conditions are more settled and manufacturer and merchant can go ahead with confidence over the future of industry. It is in this class of trade that sales efforts are being most effectively applied, both mill men and dealers co-operating generously in their methods for stimulation of business.

Coarse Papers Show Seasonal Activity

The coarse paper market is assuming the seasonal activity which had been somewhat retarded by the unusually cold weather. There is a feeling of more confidence among manufacturers, which is being reflected in increased seasonal demands for all lines of coarse grades. It is true that there is vast room for improvement but dealers are taking a more hopeful attitude in the present awakened demand of the grades that customarily move in the advance springtime. Prices are stabilized, and with that objectionable and disturbing factor eliminated the course of the paper dealers is an easier one.

District of Columbia Paper Co. Entertains

With wide open hospitality, the District of Columbia Paper Company, of Washington, D. C., entertained its guests from among the ranks of the paper, printing and advertising industries on Wednesday evening at the Poor Richard Club, 1319 Locust street. There were 350 associates from these industries assembled in the dining hall of the advertising men's fraternity and all partook of the tasty dinner given by the manufacturers, enjoyed the vocal and choral program and then heard one of the most forceful educational advertising and its relation to paper talks ever given before any trade gathering. The speaker, John Clayton, advertising director of the District of Columbia Company, was not only a forceful educator in the art of advertising and its relation to paper, but a magnetic talker, holding the attention of his audience to the last moment of the discourse through the enthusiasm of his own personality and the clever and genial method of his effective message to both paper men and consumers in the printing and advertising industries.

His topic, "A Dummy Rehearsal," was visualized by practical comparitive specimens of paper and advertising matter, showing the relations which each should bear to the other in getting a sales message across most convincingly through use of color suggestiveness harmonizing with the subject, object and appeal to the person desired to be reached by the firm compiling the mail and matter. Colors of papers as suggestive of psychological impressions and visualizing of subjects through picturization and wording to blend with the colors selected, was one of the novel ideas in use of the District of Columbia cover papers which were laid before the trades represented. Various colors were labeled to represent forces in actual life, such as yellow to portray attention; purple, royalty; blue, serenity; green, coolness, and others as listed in the charter demonstration specimen. They included in the list and exhibitions made in the dining room, the Executive, Whitehouse, Potomac, National, Reconstruction and Dixie, the outstanding and regular line of covers and papers manufactured by the Company.

Firms Represented

The paper distributors representing the line in the Philadelphia territory were included among the hosts together with the associates of sales organizations. The firms represented were Curtis & Bro., by Charles Megargee Levis, president of the Company, and Irwin Megargee; Raymond & McNutt, Leonard Raymond, James McNutt, and M. K. Christine; Whiting-Patterson Company, President Allen E. Whiting and General Manager L. F. Supple; Wilcox-Walter-Furlong Company, W. S. Wilcox, E. T. Walter, T. S. Furlong. W. W. Langtry, sales manager, acted in behalf of the District of Columbia Company. Prizes were awarded to the winners of matching disks cut from the menus, with Miss Gene Carr, of the PAPER TRADE JOURNAL, selected for the drawing of the prize disks. In the draw the first prize was won by the Philadelphia correspondent of the PAPER TRADE JOURNAL, picking coincidently the winning disk; the second prize went to Walter E. Sweeting, advertising manager of the Atlas Storage Warehouse Company, the third to Layout Manager C. C. Watson, of the Ketterlinus Company, the fourth to Charles Sangston, of the Henry S. Jacobs Company. Displays were featured by the firms among the local dealers of the District of Columbia Company and included the folders, announcements and book jackets by Curtis & Bros.; novelty papers, Raymond & McNutt; National and Reconstruction covers, Whiting-Patterson Company, and Washington Brilliant Covers by the Wilcox-Walter-Furlong Company. Presi-

dent Allen E. Whiting, of the Whiting-Patterson Company, presided, and in his foreword of welcome on behalf of the associates in the distribution of the District of Columbia Papers gave an outline of the manufacturing facilities and methods employed in the production of its products, taking his audience over the field from the raw material markets to the final preparation of the papers for shipment.

Retail Merchants Hear N. A. Schoenbucher

Having become so enthused over the successful launching of the first get-together gathering of the larger distributors with the retail merchants, the trade associates in the latter class by special request again met their brethren in the wholesale field at a dinner held on Thursday evening at the Schiller Cafe, 5th and Vine streets, and there heard N. A. Schoenbucher, Statistician from the National Association, go over the vital matter of costs and their relation to net profit control. With thirty of the retail merchants around the dining table, and John Basler, as Chairman, the larger distributors placed before their associates in the retail trade in an open forum discussion many interesting and helpful experiences in the matter of costs of doing business as it pertains to the paper trade. Those of the larger dealers who lead in the open forum discussions were Charles A. Wilder, Wilder Brothers; Joseph Miller, Garrett Buchanan Company, and secretary of the Philadelphia Paper Trade Association; E. T. Walter, Walter-Wilcox-Furlong Company; T. H. B. Smythe, J. L. N. Smythe Company; Nathan D. Isen, Enterprise Paper Company; H. Adler, Frank Hufnal, Henry H. Huquenele, Huff Paper Company, and Mr. Schoenbucher. In his talk on Net Profit Control, Mr. Schoenbucher took his audience through the many problems of cost finding as they have been adopted under the National Association's methods and which have been perfected through expert guidance of trade associates from actual experiences in their own business, for the benefit of the retailers. Then the retailers were allowed to place before their associates in the wholesale trade many factors which they come in contact with in their own paper dealing problems and these were given a review by the members of the Philadelphia Paper Trade Association, with the extension of helpful suggestions for solution. The meeting was sponsored by the Philadelphia association and promoted by Nathan D. Isen, who has been instrumental in bringing about a closer co-operation of wholesalers and retailers by his zeal in arranging these amity gatherings for the best interest of the trade as a whole and for the individuals identified with the local industry of coarse paper merchandising.

Wilcox-Walter-Furlong Co.'s New Products

The Wilcox-Walter-Furlong Company, 27 S. 6th street, has taken on the line of cover papers manufactured by the Peninsular Paper Company, of Ypsilanti, Mich. The company will be sole distributors for the Brocade cover and the Publicity covers, the brands of the Michigan manufacturers. There are eight colors, three weights and two sizes in the Brocade line, and all colors in the Publicity.

Paper Discussed Before Purchasing Agents

Paper was an important topic discussed at the meeting of the Purchasing Agents Association held Thursday evening at the Bellevue Stratford Hotel. With George W. Ward, of the D. L. Ward Company, and S. B. Defarges, of the Jessup and Moore Company, occupying the speakers' platform, the members of the association learned many interesting and informative pointers on paper in its relation to printing. Mr. Ward is Chairman of the Graphic Arts Division of the Association and featured a complete exhibit of Direct-by-Mail Campaigns which have been featured for sales promotion among large business houses of the country in the Rose Room of the hotel. He gave a short talk on good printing and what it has done for the purchasing agent. As a representative of the Jessup and Moore Company, S. B. DeFarges addressed the buyers on the papers and led the discussion of buying methods and needs that followed.

Whitmore Mfg. Co. to Discontinue

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., April 12, 1926.—Announcement was made last week that the Whitmore Manufacturing Company, coated paper and cardboard manufacturers for the past 40 years, would discontinue operations immediately and that the receiver, Attorney Russell L. Davenport, would dispose of the land, buildings, stock and goodwill and wind up the affairs of the concern. About 50 men will be thrown out of work by the closing down of the plant.

It is hoped to organize a new company to take over the plant and operate it headed by John J. White, former general manager and treasurer. The statement issued from the company office last week is as follows:

"Because of continued dullness of the coated paper trade it has been decided to discontinue operations at the Whitmore Manufacturing Company plant and to dispose of the stock and property as soon as possible to best advantage. The Whitmore plant has been in receivership for some time under Judge Russell L. Davenport as receiver.

"It had been hoped that business conditions would improve to an extent that might warrant a continuation of business with an ultimate taking over by a new company. These conditions did not materialize, hence the decision to cease operations. It has been expected that a company headed by John J. White, former general manager and treasurer, would be formed to take over the property and good will and continue along the same lines of production.

"Mr. White stated today that a company would be organized and arrangements may yet be made to take over the Whitmore plant or in the event that this plant is not available some other location either in Holyoke or nearby would be settled upon. A definite decision will be made upon the return of Mr. White from a Western trip he is to make in a short time with a view of getting first hand information as to the possibility of future business prospects. During the trip Mr. White is scheduled to give talks on coated and other papers before several printing house craftsmen's clubs commencing at Chicago and winding up at Omaha, Neb."

Busy Building Paper Machines

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., April 19, 1926.—The Bagley & Sewall Company, of Watertown, is now at work on orders for four large Fourdrinier paper machines and one smaller cylinder machine which have been booked by the company since the first of the year, according to Edward S. Lansing, acting head of the company. The orders provide for the construction of two large 234 inch machines for the Port Arthur Pulp & Paper Co., of Montreal, Canada, one 156 inch machine for the New York & Pennsylvania Paper Co., of Lock Haven, Pa., one 136 inch machine for the Oregon Pulp & Paper Co., of Salem, Oregon, and one 94 inch machine for the Martin Pulp & Paper Co., of Norwood, N. Y. These orders will keep the plant busy for some time to come.

Record Production of Pulp in Finland

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 21, 1926.—Production of chemical pulp during 1926 is expected to exceed 1925 by 10 per cent, according to a report from Assistant Trade Commissioner Kikich, Helsingfors. Several extensions and constructions are also planned for increasing production during 1927. Two new mills, one with an annual output of 8,000 metric tons (metric ton—2,205 pounds) and the other with an output of 20,000 tons are going up this year. Production during 1925 by mills of the Finnish Cellulose Association, which controls 90 per cent of the total output of the country, aggregated 302,790 metric tons of sulphite and 64,324 tons of sulphate. This is the largest production of chemical pulp in the history of the industry.

I. P. C. and Fraser Co.'s to Develop Grand Falls

Under Agreement With Provincial Government of New Brunswick, International and Fraser Organizations Are To Establish News Print Plants, Each of 200 Tons Capacity—International Paper Co. Is To Finance Whole Power Development

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., April 19, 1926.—The question of the development of the Grand Falls, on the St. John River in New Brunswick, which has been a matter of negotiation off and on for many years, has at last been settled. An agreement for the development of the falls has been reached between the Provincial Government on the one hand, and the International Paper and Fraser Companies, on the other.

The International Paper Company will harness the power, estimated at 50,000 h.p., and under the terms of the agreement 20,000 h.p. is to be supplied to the Fraser Companies, who will enter news print manufacturing with a mill of 200 tons daily capacity, while the International Paper Company will establish one news print mill of similar capacity and probably a second plant later on. The Fraser mill will be erected on the Restigouche river at or near Campbellton. The financing of the whole power development will be at the cost of the International Paper Company. An allotment of 27,200,000 kw.h. of dependable power is reserved to the Province. It is estimated that expenditures running up to from $25,000,000 to $40,000,000 are involved in connection with this and other hydro schemes about to be undertaken in the Province of New Brunswick.

Another Possibility in New Brunswick

A despatch from St. John, N. B., says: "Negotiations for the sale of the New Brunswick Railway Company lands, extending over an area of 1,650,000 acres, in Victoria and Madawaska counties, and comprising the most valuable block of freehold land in Eastern Canada, are under way.

"The negotiations have been proceeding for some days. At a recent meeting here it was decided to give an option at a price in the vicinity of $10,000,000, and a deposit of $250,000 is being made by the purchasers as evidence of their intentions.

"It is not known definitely who the prospective purchasers are, but the actual negotiations, it is stated, are being conducted by a Toronto attorney, who is understood to represent a Chicago group.

"There are, however, many circumstances which lead to the conclusion that the real purchaser is the International Paper Company."

While here, President Graustein, of the International Paper Company, authorized an official denial that his company is buying the lands above referred to. In any case it is stated that no matter who the new owners may be it means another big pulp and paper development for New Brunswick. The lands cover 1,650,000 acres, and in addition to large quantities of pulp wood, they include 650,000 acres of virgin hard wood of the very finest kind.

Preference for Canadian Paper in England

Manufacturers here are greatly interested in the cabled news from England giving a statement of Sir Philip Cunliffe-Lister, president of the Board of Trade, a Department of the Government, to the effect that the Baldwin Government has definitely decided to ask Parliament to authorize the imposition of a duty of 16 2/3 per cent on packing and wrapping paper. Under the provisions of the Safeguarding of Industries Act, the Board of Trade, in December, 1925, recommended a duty of 17½ per cent ad valorem, this to be extended to wrapping paper in manufactured articles whenever the cost of such paper exceeded 15 per cent of the value of the article of which it was a component.

It was stated at the time that if the Imperial preference of 33 1/3 per cent were given to the Canadian product, as expected, the proposed duty would result in considerable advantage to Canadian paper manufacturers competing with Scandinavia and the United States.

St. Maurice Valley Sales Corporation

Official announcement is made of the formation of the St. Maurice Valley Sales Corporation, which will take over the business of the St. Maurice Sales Company and the Belgo Export Company. The St. Maurice Sales Company has handled the output of the St. Maurice Division of the St. Maurice Valley Corporation, as well as the output of the St. Lawrence Paper Mills, Limited, and the Beaver Board Company, Limited. The Belgo Export Company is the sales agency of the Belgo Canadian Paper Company, Limited. The new corporation will also be the sales agency for the Port Alfred Pulp and Paper Corporation.

It is understood that Thomas T. Waller will be in direct charge of the corporation in the capacity of vice president. For many years Mr. Waller was connected with the International Paper Company as vice-president in charge of sales, and for the last few years has been in charge of the news print department of H. G. Craig & Co. of New York, large distributors of news print manufactured by independent mills. The Company's headquarters, it is stated, will be in the Canada Cement Building, Montreal, and it will also have offices in New York and other publishing centers.

Protecting Quebec Forests

As has been the case for the past few years, all people who wish to travel through the forests of Quebec Province will again require permits during the coming season. Stringent requirements will also be in force once more regarding permits for the burning of slash. The reason for these measures is the realization that 90 per cent of the forest fires are caused through human agency, and are, therefore, nearly all preventable.

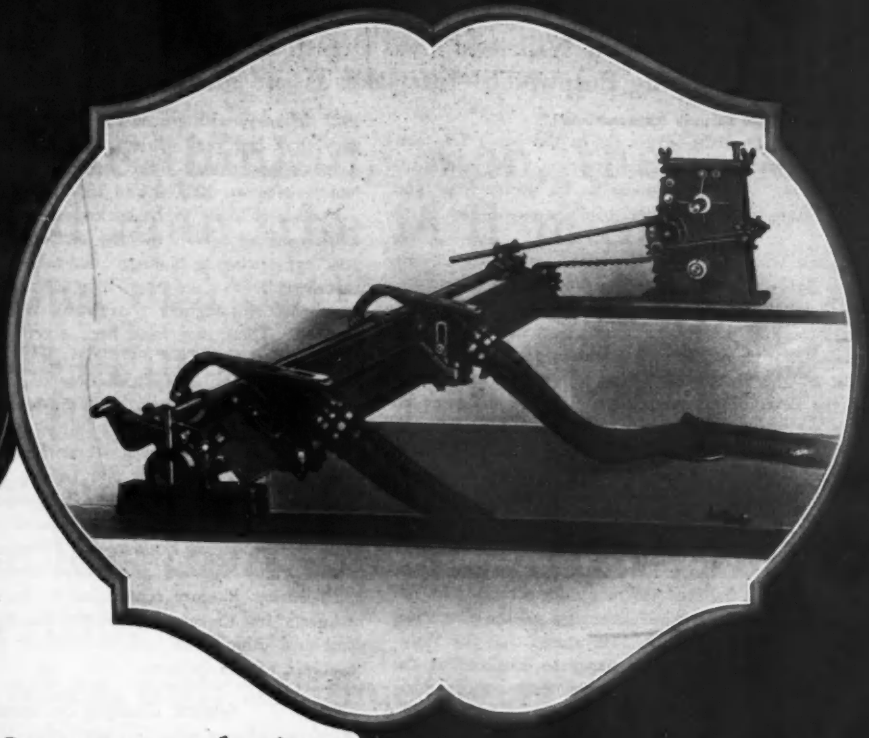
Brompton Company's New Mill

The Brompton Pulp and Paper Company, Ltd., has made arrangements for financing the construction of the new news print mill at Bromptonville, Que. Work will be started immediately. The machinery will be manufactured by Charles Walmsley & Sons, and the mill will have a total capacity of 220 tons of news print per day.

Port Alfred Co.'s Development

The Port Alfred Pulp and Paper Corporation has nearly completed the installation of two news print units. The first machine, originally planned to be ready for operation in July, is now expected to be ready this month, and progress with the second machine has been equally satisfactory. Construction is also under way for the installation of the third and fourth machines, to be ready for the end of the year.

The head offices of the corporation are to be moved to the Canada Cement Building, Montreal, where it will occupy premises jointly with the St. Maurice Valley Corporation, and its constituent, the Belgo-Canadian Paper Company, Limited. This move follows closely upon the appointment of George M. McKee as managing director of St. Maurice Valley Corporation, Mr. McKee being also president of the Port Alfred Pulp and Paper Corporation. The two companies being under the same operating control, location in the same offices will obviously make for economy in administration.



Increases production by eliminating shut downs for washing felts.

Improves quality by keeping the felt in uniform condition throughout its life. 290 have already been sold in this country. 166 were repeat orders.

BIRD MACHINE COMPANY
South Walpole
Massachusetts
8704-C

BIRD MACHINERY

Built for the continuous production of uniformly good paper

Demand for Paper in Toronto Continues Good

Requests For All Lines of Paper Is Fairly Satisfactory—Spruce Falls Co. Builds Large Addition to Sulphite Plant and Will Add Two Digesters—Thompson & Heyland Lumber Co. Is Busy Shipping Pulpwood—Interlake Tissue Mills Announce Staff Changes

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., April 19, 1926.—Business in the paper line continues good and reports are very satisfactory on the operations of the past few days. All lines appear to be pretty busy and, with the improved state of the weather, trade is picking up in allied industries.

In the despatches from London, England, last week, it was reported that the Baldwin government had decided to ask parliament to authorize the imposition of a protective duty of 16 2/3 per cent on packing and wrapping paper. This was the statement made to a deputation of British manufacturers, who waited on the President of the Board of Trade, protesting against the proposed tariff, the deputation representing fourteen different industries. It was set forth some time ago that, if tthe Imperial preference of 33 1/3 per cent were given to the Candian producers, as expected, the proposed duty would result in considerable benefit to manufacturers in Canada competing with Scandinavia and the United States. A. Huntley, who is a member of the Hodge-Sheriff Paper Company, Toronto, selling agents for the Wayagamack Pulp and Paper Company, of Three Rivers, Que., manufacturer of kraft papers, stated that he believed the new duty proposed by the Baldwin government would be to the advantage of the Canadian mills against Scandinavian competition. He stated that the Wayagamack Company shipped considerable paper to England at the present time. "It is not going to make much difference," added Mr. Huntley, "since the prices are about as low as possible already but the protection might help to build up a greater trade in this line between Canada and England."

Building Extension to Plant

The Spruce Falls Company, Kapuskasing, of which J. H. Black, Toronto, is president, is building a large addition to the sulphite plant of the company and will add two more digesters, increasing the output from 110 to 165 tons daily. About four hundred and fifty men are employed at present by the contracting firm of Morrow & Beatty in clearing the right of way for a logging railway of standard gauge width from Kapuskasing to Smoky Falls, a distance of fifty miles which work will be completed in six months. The railway will be used for getting in supplies to Smoky Falls, where the company will erect a large power house of 75,000 hp. capacity on the Kapuskasing river. J. H. Black spent the past week at Spruce Falls and reports considerable snow in that section yet. The right of way will be one hundred and twenty-five feet wide.

Handling Large Supplies of Pulpwood

The Thompson & Heyland Lumber Company, of Toronto, extensive operator in pulpwood, is shipping about 20 cars, or about 320 cords a day, to Smooth Rock Falls, Campbellford, Frankford, Merritton, Thorold, as well as the states of New York and Pennsylvania. About 50 per cent of this wood is secured south of North Bay from the Central Ontario, Haliburton, Parry Sound and Ottawa districts, and the remainder from north of North Bay and east and west along the Transcontinental Railway line.

Instead of shipping the product all out within six weeks, as was the case in the past, the Thompson & Heyland Company is seeking to distribute the consignments and have a normal average for each of the twelve months of the year. The reduction in the weight of the dry wood, by this policy, results in a considerable saving in freight.

Contracts are being made with the settlers for peeled wood for 1927 delivery, with prices for spruce showing a little firmer tendency than last year while poplar is slightly easier. The company have already placed eight months of their 1927 business and will handle between 100,000 and 150,000 cords.

Peeling is likely to be backward owing to the late spring. The work generally starts in May and continues until the first of August but, owing to climatic conditions, operations may have to be curtailed by the settlers. The Thompson & Heyland Company expect 300 Norwegians to arrive in Walter township by the middle of May. These men have been given work in peeling poplar for some weeks.

The Thompson & Heyland Company has six or seven rossers at work, some of them operated by oil-burning engines. Four of these are located at the West, two at the east and one at the south of Cochrane. A new policy has been adopted in connection with the winter cutting of spruce and balsam in that the Thompson & Heyland Company have made arrangements with a number of settlers to ross their own wood and install a J. & C. rosser manufactured by the Smith Foundry Co., Fredericton, N. B. The result is that many farmers are rossing their cut in their own yards which makes it more economical to handle and haul. Pulpwood prospects for the coming season, owing to the activity in news print and other mills, are considered very satisfactory by close observers of the industry.

Several Changes on Interlake Staff

C. Nelson Gain, who for some time has been superintendent of the plant of the Canadian Vegetable Parchment Company, Merritton, Ont., has been appointed manufacturing manager of the Interlake Tissue Mills, Merritton, succeeding Joseph Cathcart, who recently resigned. Mr. Gain who is well known in the paper trade and has a large number of friends, was for several years superintendent of the Don Valley Paper Company, Toronto. E. C. Marton, who has been on the sales force of the Interlake Company, Toronto, for a considerable period, has been promoted to the post of manager of sales and will also continue in charge of the advertising and promotion work of the company. John Berhalter, who was with the Interlake Tissue Mills for nine years, has resigned and his place has been taken by Kenneth Nichol, a practical paper maker, who spent some years at the plant.

Notes and Jottings of the Industry

C. W. Graham, president of Buntin, Gillies & Co., wholesale paper dealers, Hamilton, and former president of the Canadian Paper Trade Association, is at present touring Europe and writes from Italy that he is having a wonderful time and that his health is greatly improved.

H. A. Goldsbrough, of the Hodge-Sheriff Paper Company, Toronto, has left on an extended business trip to the western provinces of Canada.

E. A. Schofield of the Schofield Paper Company, St. John, N. B., who is president of the Canadian Paper Trade Association, was in Toronto last week on his way home from an extended business and pleasure trip to the Pacific Coast.

The handsome safety flag, which was won by the Spruce Falls Company, Kapuskasing, Ont., in the competition conducted among the pulp and paper mills of the province of Ontario in 1925, has been framed and will be hung in the Spruce Falls club house building.

The recent severe storms in Ontario cut off all telegraph and telephone communication between the head office of the Provincial Paper Mills and the Georgetown plant for several days.

Your Paper is Made in Your Beaters

You, the thinking man, the practical man, the m ll man, *know* that in a tub designed like the Dilts approved NEW TYPE beater, the stock just naturally *will* travel faster, and the required power *will* be less than in a standard Hollander beater tub.

And when, with this time-saving and power-saving type of tub are combined the advantages of the Dilts patented bandless roll with Dilts special alloy fly bars, the Dilts patented rigid stands with spring cushioned lighter bar, and all the other Dilts special features, you certainly have the "last word" in modern beater equipment.

You make good paper of course. You make as many tons as possible of course. You have to make it as economically as you can of course. Then you will use Dilts approved NEW TYPE Beating Engines of course. "Your paper is made in your beaters."

Dilts

MACHINE WORKS, Inc. FULTON, N.Y.

EXPORT OFFICE ~15 PARK ROW~ NEW YORK CITY

Price Stabilization in the Container and Paperboard Industry*

By Grafton Whiting, Paperboard Industries Association, Statistician

It is said that the selling price of a fibre container is what you can get for it; that your competitors set the prices and costs have nothing to do with it. This may be a logical conclusion based on certain transactions but each manufacturer uses his independent judgment as to what he will or will not accept. If anyone consistently sells below cost, he will not long remain in business and each manufacturer must have a dead line whether he calls it so or not, below which he loses money and he cannot for any length of time be in ignorance of about where this dead line is. The cost of the product is the dead line and must be the final determining factor in selling price ranges. If it is the final factor, then it must be the current factor operating continuously as a basis upon which each must rely in determining the price for which he will dispose of his product. Certain conditions may arise that will seem to justify a figure below the dead line, but these must seldom occur if capital is not to be seriously impaired,

Container Prices

Selling prices may be considered as being governing by three varients: profit, conversion costs, and board or material costs.

Profits vary with the character of the sale, the seasonal demand and the kind of service rendered. It is the one optional factor in a transaction and depends on general sales policy. Profit, although the important item, represents but a small proportion of the total.

Conversion costs vary with the volume of production, being less in times of full operation and more in slack periods. These variations, under modern accounting methods, are equalized

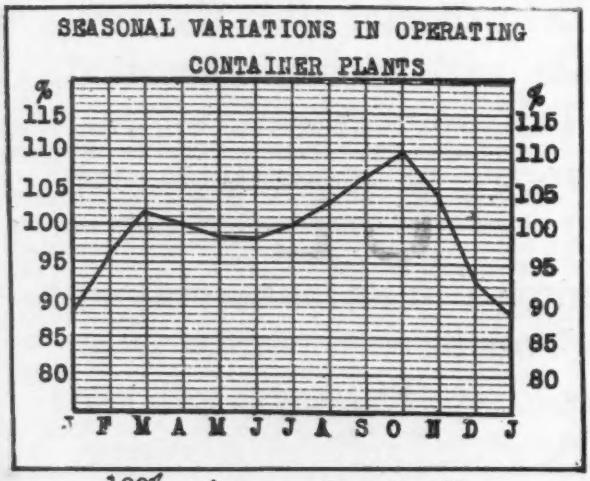


FIG. 1

through the cycle of a year in such a manner that they are well understood and under control. Unless controlled, conversion costs would dictate a higher cost in dull periods, and make sales more difficult. Conversion represents 25 to 30 per cent of total costs and is not the main factor.

Material costs vary with the market price for boxboard and as they represent 65 to 75 of total costs they are the principal factor. Selling prices follow boxboard prices but not in the close manner that is essential in good merchandising. With a rising price of boxboard, box prices are sluggish and lag behind in a slow advance. Fabricators seem afraid to demand a just price and often quote figures based on a material at cost less than it can be purchased in the open market. Some even go so far as to advertise to their customers that board prices have advanced but they are willing to sell at the old level because they have some stock left on hand.

But what happens when boxboard prices go down. Almost at

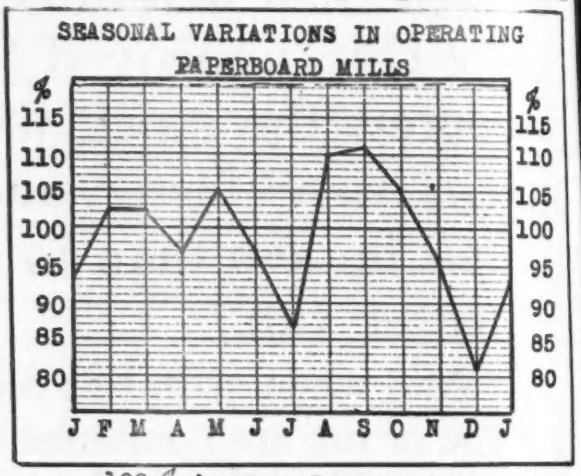


FIG. 2

once box prices fall. No one states that he has board on hand at higher cost and must sell it before he can drop his box prices. To fail to take immediate advantage of rising prices and to drop precipitously with falling prices is certainly the poorest kind of merchandising.

The answer is that prices should be based strictly on replacement values. All container plants require a certain complement of stock on hand for economical operation. This is merely a reserve and might just as well be unpurchased board except for the necessity of having it close at hand. If all quotations were made on the basis that board must be purchased to fill the order serious losses when board prices drop would be avoided.

There is a policy in the minds of some fabricators that by dropping the price they can increase the demand. This is true in many industries, but not in box making. Because a container is cheaper no manufacturer is going to use more of them. His demand is governed by the number of articles he produces and the cost of the container is a negligible item of his cost and any saving he may make in lowering container costs is rarely passed on to stimulate retail buying. A lower price may induce advance ordering but here again buyers are inclined to hold off in a falling market for still lower levels.

Stabilization

Stabilization of price should be the aim of all container manufacturers. It is one of the first signs that an industry has found its level among the old and well established industries. From the buyer's point of view, prices that are fairly consistent, without wide and rapid fluctuations, establish confidence that his purchases today will not be badly out of line with those of next month or two months hence. He can safely estimate his container

* Presented at the meeting of the Paperboard Industries Association, New York, March 25, 1926.

Established 1886

Our 40th Year

1926-1927

To confer with us before you buy your pulp for this or next year will cost you nothing. To buy elsewhere without first consulting us may cost you a lot.

We count as one of the great assets and cherished possessions of this business, the fact that it has been our privilege to serve the trade for forty years. We have constantly endeavored to render a service that should be commenced, carried on, and concluded with complete satisfaction to you and to us.

We should like to show you in what manner you can profit by lessons we have learned in forty years of schooling.

WOOD PULP

of Every Description

M. GOTTESMAN & COMPANY

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Kungstradgardsgatan 10,
Stockholm, Sweden.

costs in his output and his future contracts. He can feel that his competitors are not going to have a marked advantage over him later on.

For the box makers, stabilized prices have a strong appeal. With a fairly level range of selling prices plans can be made for a considerable time in advance. Hand to mouth expediences give way to well thought out policies; operating volume can be better forecast, labor more steadily employed, equipment better balanced, confidence can be established in the minds of buyers to place forward orders and give work for the dull periods. With fluctuations of 20 and 30 per cent as have been common, the buyer is disgusted. He thinks all box manufacturers are without business sense and refuses to trust them for anything beyond his immediate needs.

Procedure

Stabilization, like many other improvements, is a process of education. It is the schooling of individuals in an industry to see beyond their own small circle of trade and beyond the day to day transactions. The situation in one locality is affected by the conditions in another. The lifting of competition in one place by increased demand and by plants filled up with work is soon felt in all directions. If the container industry were not so seasonal in its operations, stabilization would be more easily accomplished, but a varying volume at different times of the year make control more difficult. Each container maker thinks he is specially privileged to maintain full activity in his plant regardless of the general demand. With a knowledge of the seasons and willingness to understand when they are approaching, it is only necessary to be governed by them to avoid cut-throat tactics and price slashing. If each recognized that there is only business enough to run 65 or 70 per cent of the time during the summer, for example, and would be satisfied with his complement of volume, there would not be the scramble for orders when business naturally becomes dull and prices would not be cut to the quick at a time when such profits as can be obtained are most needed. Price and volume seem inseparable in the minds of some people, but it is far better to do a little business at a profit than a large amount at cost or a loss.

Costs

Equipment values in a container plant are not such a large item that partial idleness will quickly turn figures into the red because of operating loss.

The supply of heat and power and general upkeep is not as important an item in a fabricating plant as in a paper mill, so the urge for full time running to effect economy in operation does not have the significance in the former as in the latter.

Stabilization in container prices is not dependent upon stabilization in boxboard, the largest factor in costs. With boxboard fluctuating within narrow ranges and confidence established in the mill operators, real progress will be made.

Economical mill operation requires steady running. With the machine hour cost on the paper machine alone ranging from $50 to $80 per hour, shut down for lack of orders mounts quickly into a considerable loss. All such losses must be included in the average selling price and in times of peak demand prices go up to offset the slack periods with their shut down loss and their low price ranges. If sufficient equipment must be maintained to satisfy a severe peak load then there will be more standing idle during low demand.

Cooperation

Container manufacturing can govern these conditions to a considerable extent and it is to their advantage from a selfish standpoint to do so. By cooperating more closely with the mills by forecasting their requirements, by evening out their specifications for delivery, much can be done to reduce shut down losses and by so much will stabilization in board prices be gained.

Much has been said about mills with fabricating plants cutting prices during slack periods, but with a heavy shut down loss ahead and container plants holding off on boxboard orders, it is only natural that effort be made to bring in enough business to continue operating. In this same period of low demand each box plant feels entitled to take any kind of an order wherever it can be found regardless of its ability to produce it economically; and the only sales argument used is price. With 8 or 10 salesmen to every buyer, stabilization is the last thing thought of.

A large box manufacturer recently decided that he had had enough of large volume business with little or no profit and beginning with January 1st, would accept only such orders as showed a just profit. The result was a reduction in volume, as was to be expected, but his firm stand on price brought him a substantial increase in net profits.

How Accomplished

If stabilization is to be accomplished, it must be started at the bottom and worked for from the mills through to the sales of finished containers. Both fabricating mills and independent plants must adhere to replacement market values on all board figured in estimating, and forward planning must be done to equalize the demand on the mills. Sales effort must be confined to the character of product the plant is equipped to manufacture economically and periods of lessened demand must be met with determination to seek only a just proportion of the business offered. The argument of cheap prices must give way to the statement that fibre containers are priced with a reasonable margin of profit and render a service better and at less cost than any other kind of container that can be bought.

May Start Work Soon on Sacandaga Reservoir

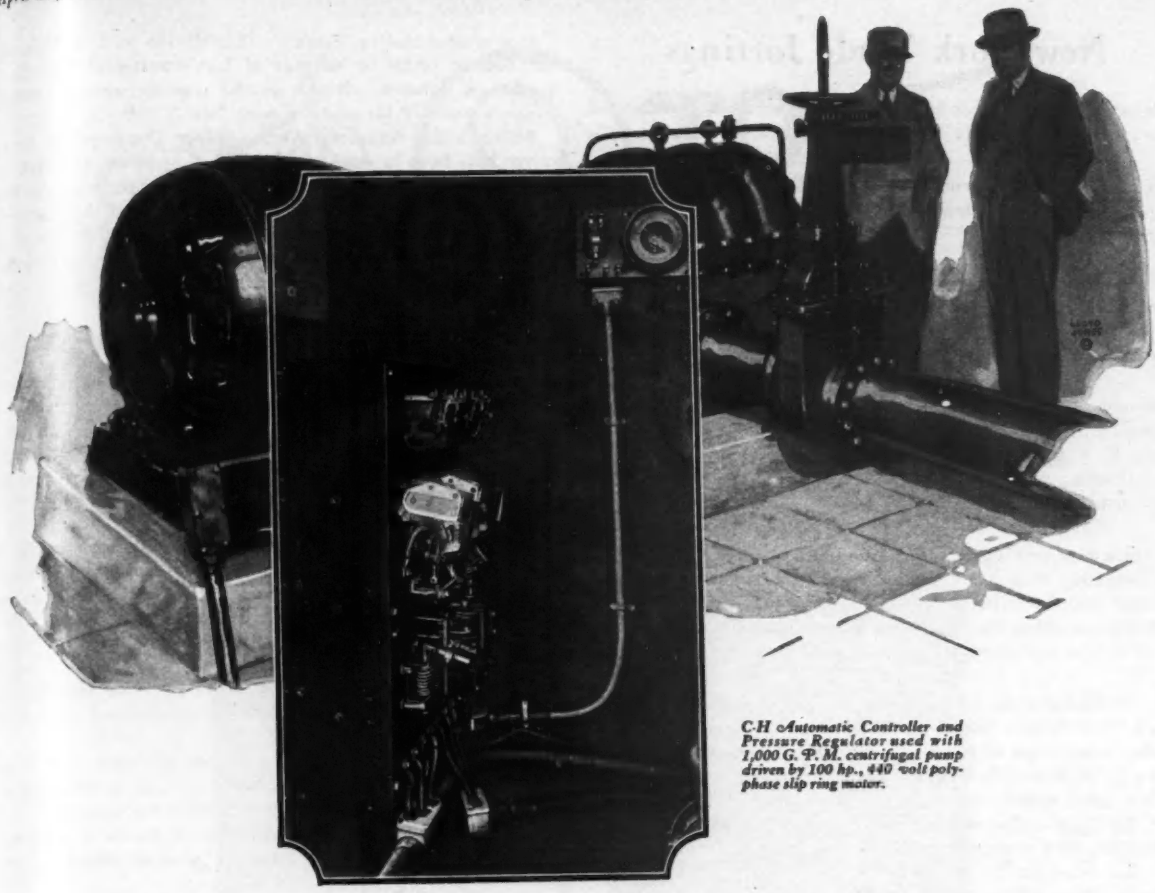
ALBANY, April 17, 1926.—Application will be made within the next few days by the Hudson River Regulating District Board to have the court appoint appraisers to appraise the land owned by the Fonda, Johnstown & Gloversville Railroad Company needed for the construction of the Sacandaga reservoir at Conklingville. If the figures decided upon by the appraisers are satisfactory to the railroad company work on the reservoir will be started immediately. If the railroad company appeals the work on the reservoir will be held up probably for another six months.

The Union Bag & Paper Corporation, of Hudson Falls, is planning the erection of a large hydro electric power plant at Hudson Falls as soon as the state has completed the Sacandaga reservoir, according to information coming from the company. The project will cost in the neighborhood of $6,000,000, it is estimated. The Union Bag and Paper Corporation owns several sites along the Hudson River which will be capable of developing a huge amount of hydro-electricity when the new reservoir is completed. The plant when completed will, it is understood, supply the needs of the Union Bag and Paper Corporation and the surplus power will be sold to the Adirondack Power & Light Corporation.

The International Paper Company which built the dam and power plant at Sherman Island a few years ago owns several undeveloped sites along the Upper Hudson which will be developed, according to report, when the Sacandaga project is carried out. Another plant with a capacity of 40,000 kilowatts will be constructed at Luzerne. Hudson River power has a potential development of approximately 400,000 horse power, engineers estimate, and paper and pulp firms own or control most of the more valuable power sites.

Zellerbach Co. Holds Exhibit at Portland

PORTLAND, Ore., April 19, 1926.—The Zellerback Paper Company, held an exhibition April 6, 7 and 8, comprising displays of the graphic arts leaders. The specimens shown were selected from more than 1200 pieces of work submitted by America's representative printers.



C-H Automatic Controller and Pressure Regulator used with 1,000 G. P. M. centrifugal pump driven by 100 hp., 440 volt polyphase slip ring motor.

How dependable is your water supply?

HOW VITAL it is that the pressure on your pumping system be kept within certain limits - or a predetermined level be maintained.

To depend upon the human factor, is taking a chance—to worry over the matter is unnecessary. Cutler-Hammer control engineers can help you. They have designed and built controllers for pumping service, since the earliest use of electric motors.

These controllers take care of all functions of starting, accelerating and stopping of motor-driven pumping equipment. They keep pumps running as long as necessary and shut them down when not needed. They protect the motor against over-loading—in short, they do the work of three shifts of men; and because they are so often installed where attention is given but infrequently, the reliability of construction and operation of Cutler-Hammer Controllers is of vital importance.

The pump builder and user, both benefit when the motor control equipment bears the well-known "C-H" trademark.

The CUTLER-HAMMER Mfg. Co.

Pioneer Manufacturers of Electric Control Apparatus

1226 St. Paul Avenue MILWAUKEE, WIS.

CUTLER C-H HAMMER

Industrial Efficiency Depends on Electrical Control

New York Trade Jottings

Howard S. Taylor, consulting paper mill engineer, of Montreal, Que., and Dayton, Ohio, is in town this week.

* * *

K. S. Maclachlan, general manager of the Lincoln Pulp and Paper Company, of Merritton, Ont., was in New York last Thursday and Friday.

* * *

B. F. Heintzleman, assistant district forester for Alaska, is in New York this week, furthering the development of paper mills in that region. While in the city, Mr. Heintzleman is making his headquarters at the Hotel Roosevelt.

* * *

At the weekly luncheon of the Salesmen's Association of the Paper Industry, held last Monday at the Town Hall Club, New York, T. J. Keenan, associate editor of "Paper Industry," gave an interesting talk on "The Relation of the Paper Salesmen to the Journals of the Industry."

* * *

Contrary to newspaper reports, the Bailey Paper Company, of 296 Broadway, New York, was not completely burned out recently, although a lot of water damage occurred. With both uptown and downtown warehouses, the Bailey Paper Company is enabled to fill all orders, and deliveries are proceeding in a normal manner.

* * *

C. W. Halligan has resigned his post as cost accountant of the News Print Service Bureau, to take a similar position with the Rubber Association of America. Mr. Halligan has been with the News Print Service Bureau for the last five years, during which he has accomplished some splendid work. Before taking up his new duties his colleagues entertained him to luncheon and presented him with a suitable token of their esteem.

* * *

After addressing the members of the Schenectady Advertising Club at their luncheon on Tuesday, R. S. Kellogg, secretary of the News Print Service Bureau, and chairman of the National Forestry Program Committee, broadcasted a talk on "Our Forests" from Station WGY of the General Electric Company. Returning to New York, Mr. Kellogg attended the Dinner of the League of Advertising Women, at the Advertising Club House on Tuesday evening, when he made his third speech of the day, on "Forestry and Advertising."

* * *

S. L. Willson Starts Injunction Suit

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, April 20, 1926.—Considerable interest was aroused the past week in the suit for injunction instituted in the United States District court by Sidney L. Willson, receiver of the American Writing Paper Company against the officials of the Ohio Department of Public Works, to clear the title to the lease of water power rights along the Miami and Erie canal at Excello, in the Southern part of the Miami Valley.

Mr. Willson alleged in his petition, filed at Cincinnati, that George F. Schlessinger and Richard T. Wieda, of Columbus, respectively superintendent and assistant superintendent of Public Works of Ohio, transferred the lease of the American Writing Paper Company covering water power rights along the canal at Excello to W. H. Johnson, of Middletown, and John R. Goudie of Cincinnati, partners as Goudie & Johnson, Middletown, in violation of the rights of the American Company and himself as receiver.

Mr. Wilson, the petitioner, states that this lease was obtained by the Harding Paper Company, predecessor of the American Writing Paper Company, from the state of Ohio in 1890 to provide water power to its paper mills at Excello, Ohio, and that the lease was renewable at the expiration of 30 years.

It is alleged that on February 21, 1925, the state of Ohio without further notice or warrant of law, transferred the lease to Gouldie & Johnson. Notice of the transfer was not received, Willson states in his petition, until July 2, 1925.

Although the American Writing Paper Company and the receiver have been in possession of the water power, buildings, etc., covered in the lease, the receiver says the transfer of the lease has placed a cloud on the title of the same, and that unless the court grants relief, he will be unable to carry out orders of the court for the sale and conveyance of the lease and the American Writing Paper Company's rights thereunder.

Maryland's Forest Possibilities

BALTIMORE, Md., April 20, 1926.—"If Maryland would properly utilize its idle forest lands it would be possible to produce a revenue from productive forests that would warrant an appreciable reduction in taxes of the citizens of the state," said Dr. Hugh P. Baker, Executive Secretary of the American Paper and Pulp Association, before the Baltimore Rotary Club at its meeting this noon.

"This cannot be done in a year," he added, "but you have in Maryland the possibility of producing a sustained annual revenue from your forest lands as well as providing within the state vast quantities of raw material which is now brought into Maryland from distant portions of the country. You could not only utilize the forest lands which are in very many cases lying idle, but by making these lands productive you could cut down materially the cost of the wood you now require for construction and for the wood-using industries.

"The anual consumption of lumber and pulpwood in Maryland is nearly three times the yearly growth of your forests. Further, Maryland is dependent upon outside sources for four-fifths of the lumber she uses, which means that you are paying a premium in the way of an annual freight bill on imported lumber of more than $5,000,000.

"Over against your unproductive and unprofitable forest areas, Maryland should take note of the fact that the cost of operating the state government has increased from $7,010,630 in 1913 to $21,349,931 in 1924. In other words, your government is costing today over three times what it cost in 1913. Note also the fact that taxes and licenses collected by the state of Maryland increased from $4,530,292 in 1913 to $14,095,758 in 1924. Forest lands in Maryland are capable of producing better forests than are grown anywhere in Europe today, yet you are dependent upon outside sources for 90 per cent of the lumber which you are using, with 12 per cent of that lumber coming from as far away as the Pacific Coast.

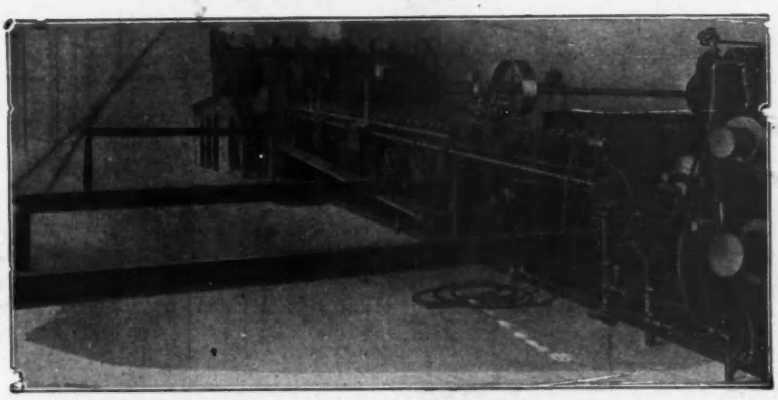
"It is time that Maryland faces squarely the question of idle and unproductive land as over against increasing taxation and increasing cost of government. An idle acre is as unproductive as an idle man. It is reasonable to ask why you are leaving several hundred thousand acres of land practically idle, as far as returns which might be secured are concerned, and going deeper each year into the pockets of the citizens for taxes. It is not good business for the state to demand that idle forest lands capable of being made productive, should give a return to the state comparable with the return received from agricultural lands?

"Every acre in Maryland should be utilized to the financial profit of the owner, whether an individual, a community, or the state as a whole. However, before forestry can become a productive industry in the state, the people must awaken to the fact that all forest land must be effectively protected from fire and put under practical business management."

Leshner Paper Stock Co. Moves to Hamilton

[FROM OUR REGULAR CORRESPONDENT]

HAMILTON, Ohio, April 17, 1926.—The Leshner Paper Stock Co., Inc., has moved its main office from Lockland to this city.



Proud of Their Beloit

"We are running steadily; due, most of all, to the running quality of the splendid machine furnished by you. . We are proud of our BELOIT machine."

Beloit Removable Fourdrinier With Rails in Place

THE ratio of efficiency in changing wires on the NEW BELOIT FOURDRINIER as compared to the old-fashioned method, is 8 to 1—ten men working four hours each against 5 men working only an hour on the BELOIT—40 man hours vs. five.

This is but one of the many points of efficiency for which the NEW BELOIT is recognized. The resulting increase in production possible through the improved Removable, Adjustable and Shakeable features is astounding.

Paper-making is becoming more and more a science, due to the modern improvements now available. Erratic man-power is being replaced with dependable machine utility and the resulting benefits to papermakers are many.

Investigate the NEW BELOIT. *Write today for Bulletin No. 9*

The NEW BELOIT FOURDRINIER

BELOIT IRON WORKS — Beloit, Wisconsin, U. S. A.

Obituary

Clarence W. Collins

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., April 17, 1926.—In the sudden death of Clarence W. Collins, vice president and manager of sales of the Cherry River Paper Company, with offices in the Pennsylvania Building, Philadelphia, and mills in Richmond, Va., there passed from trade circles an associate of a family extensively identified with paper manufacturing in the Quaker City industry. The passing of Mr. Collins came suddenly as a result of heart failure, his death occurring shortly after he had arisen last Monday at the Hollywood Plaza Hotel, outside Los Angeles, Cal., where he had gone on a brief vacation journey with Mrs. Collins a few weeks ago. Clarence W. Collins was the brother of two prominent Philadelphia paper manufacturers, Grellet Collins, of the Dill and Collins Company, and Isaac Collins, of the National Waterproofing Company, of Philadelphia and Camden, N. J. He was 53 years of age. His son-in-law, Alfred M. Watts, also is identified with the paper business as an associate of the Cherry River Company. Mr. Collins first became identified with the paper trade in 1894 as a member of the firm of Buchanan and Collins, having as a partner R. G. Buchanan, son of Alexander Buchanan, one of the founders of the present firm of Garrett-Buchanan Company, with headquarters at 14 N. 7th street. In 1897, the Buchanan-Collins Company consolidated with the Garrett and Buchanan concern, and it became the Garrett-Buchanan-Collins Company, the other partner besides Alexander S. Buchanan in the firm of Garrett and Buchanan, being Sylvester Garrett father of Sylvester S. Garrett, present head of the firm bearing that name and founder of the company, with headquarters at 12 S. Marshall street. After four months' association with the consolidated companies he severed his connection as secretary, selling his interests and joining the York Haven Paper Company as Vice President where he remained four years, leaving in 1904 to organize the Cherry River Paper Company, of which he was vice president and manager of sales until his death last week. Surviving are his widow, a daughter, Mrs. A. M. Watts, and two other brothers, Perry and Frederick. Funeral services were held at his house, 148 West Highland avenue, Chestnut Hill, last Friday.

Chemical Exposition to Be Held at Cleveland

The Second Chemical Equipment and Process Engineering Exposition occurs in Cleveland's $6,000,000 Public Hall, May 11-15, inclusive. It is managed, not for profit, by the Association of Chemical Equipment Manufacturers, a national trade association.

At the same time will occur a remarkable week's program of technical sessions sponsored by the Associated Technical Societies of Cleveland, which is made up, together with other units, of sections, chapters, groups, etc., of nearly a dozen national technical societies.

These are some of the speakers and subjects included in the week's technical program:

Dr. C. H. Herty, President, Synthetic Organic Manufacturers' Association; F. J. Vosburg, National Carbon Company; A. E. Marshall, Consulting Engineer, "Corrosion Problems in the Heavy Chemical Industry"; F. A. Ernst, Fixed Nitrogen Research Laboratory, U. S. Department of Agriculture, "Some Equipment Suggestions for High Pressure Reactions"; Dr. Weston A. Price, Dental Research Laboratory, "Some Chemical Aspects of the Relation of Light to Life and Health"; Dr. Hugh Taylor, Professor, Physical Chemistry, Princeton University; M. C. Lake, Geologist, M. A. Hanna Company, "Probable Life of Our Merchantable Ores"; E. W. Davis, University of Minnesota, School of Mines, "Development of New Methods for Iron Ore Treatment"; Colin G. Fink, Professor of Chemical Engineering, Columbia University, "Electro Deposition of Chromium and Chromium Alloys on Brass and Steel"; W. M. Corse, The Duriron Company, "Alcumite—An Acid Resisting Bronze"; H. E. Ebright, Chief Engineer, Ferro Enameling Co., "Refractories as Adapted to the Ceramic Industry"; Maurice A. Knight, "Use of Acid Proof Stoneware in the Chemical Industry"; R. G. Cowan, President, Cowan Potteries, "Art in the Ceramic Industry"; A. O. Miller, Reeves Brothers, "Welding of Large Chemical Equipment"; H. H. Dow, President, Dow Chemical Company, "Diphenyl Oxide Bi-Fluid Power Plants"; B. W. Rogers, Linerite Division, B. F. Goodrich Rubber Company, "Rubber Lining for Grinding Mills and Other Chemical Equipment."

Major General A. A. Fries, Chief, Chemical Warfare Service, U. S. A., and Newton D. Baker, former Secretary of War, will be speakers at a banquet of the Associated Technical Societies, to which visitors to the Exposition are also invited, on Tuesday, May 11.

Amazed at Canada's News Print Industry

William Harrison, chairman of the Inveresk Paper Company, of Great Britain, was a visitor in Canada during the week. In an interview he said: "As a result of my investigation I am amazed to find that in Canada alone for 1926-1927 something like 30 new large fast-running news print machines are in course of construction or are on order, with the result that the Canadian production by the end of 1927 will be increased by nearly one million tons over its 1925 production.

"I am satisfied from my investigation that practically the whole of the news print production in Canada is marketed in the United States but I am apprehensive as to the possibility of the United States market absorbing the extra one million tons likely to be produced within the next two years,—that is, unless the United States through the force of serious Canadian competition in news print is compelled to curtail its own production, especially in the older and less economical plants.

"I came to Canada opposed to the policy recently put into practice by the British Government of financing the new Canadian pulp and news print industries under the Trades Facilities acts, which operate on the condition that the plant required for such new industries must be made in Great Britain. But I am satisfied now that any really sound undertaking for the development of the Canadian pulp and news print industry should be unhesitatingly supported by the British Government through the Trades Facilities acts. For not only would such a policy mean increased employment in the depressed engineering trades in Great Britain, but it would have a counteracting influence against what I fear would be the result if such a policy was not adopted, namely, the Americanization of the great Canadian pulp resources."

Mr. Harrison, who is also chairman of the International Pulp and Chemical Company, Ltd., controlling five large factories in Germany, went on to say that he did not apprehend any extensive entry by Canada into the British market.

Richmond Paper Concerns Merge

[FROM OUR REGULAR CORRESPONDENT]

RICHMOND, Va., April 17, 1926.—Announcement has been made of two important mergers in the paper industry of Richmond—The Virginia Paper Company absorbed the Anderson-Wilton Paper Company, and the Southern Paper Company has been merged with the R. A. Cauthorne Paper Company.

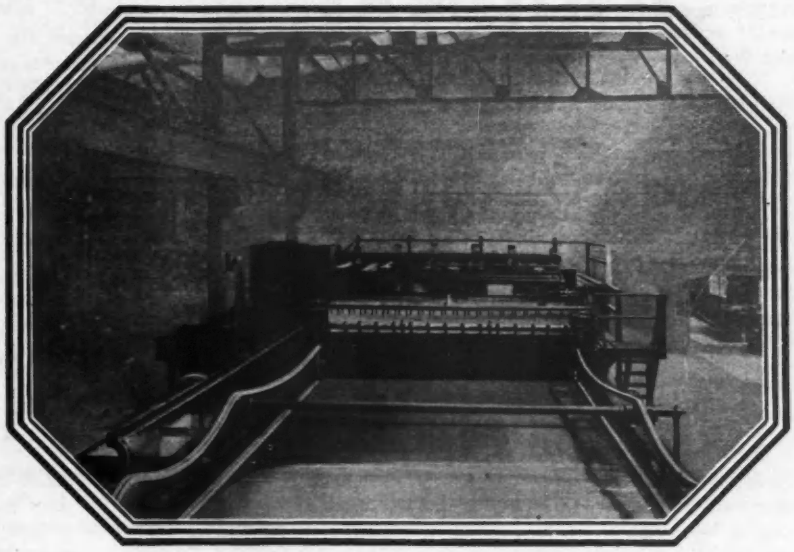
No figures were available as to the amounts involved in the consolidations. Both mergers become effective immediately.

Finland Increases News Print Output

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 21, 1926.—The output of news print by Finnish mills during 1925 is placed at 171,518 metric tons, of which amount the Kymmene Aktieboleg produced 61,518 tons. This represents an increase of approximately 7 per cent over the previous year's output. Exports amounted to 148,837 tons.

NEWS PRINT



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Every manufactured article is open to improvement and the news print made in your mill is no exception. It is our purpose to show you how this can be done at an actual lowering of the cost of production. Our plan for improving your news print makes possible the manufacture of a sheet of uniform thickness across the entire width of your machine. It, moreover, gives your paper better formation and helps to eliminate lumps and foam spots. This is done with a substantial saving in cost. All that is necessary is the installation of a Voith High Pressure Stock Inlet. Whether the machine runs at 50 feet or 1500 feet per minute, the Inlet makes possible all of the above mentioned improvements. It eliminates slices and the usual long apron and as a result saves in time, does away with a great deal of bother and prevents much wear on Fourdrinier wires.

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PAPER TRADE JOURNAL
ESTABLISHED 1872
With Which Is Combined
PAPER
The Magazine of the Paper Industry
HENRY J. BERGER, Editor

Member A. B. C. Audit Bureau of Circulations

Vol. LXXXII New York, April 22, 1926 No. 16

INTERNATIONAL STANDARDIZATION

A strong movement for the formation of an international body to develop and perfect industrial standards is now under way in a series of discussions being held in the Engineering Societies Building, 29 West 39th street, New York. The immediate stimulus to this effort at getting together arises out of several international undertakings of basic importance, the majority of which are in the mechanical industries.

Electrical questions of the kind have for a number of years been effectively dealt with by a technical body of world-wide scope, the International Electrotechnical Commission. Other matters, however, have been without a similar central body to deal with them.

Advancing industrial demands, and the growing needs of interchange of industrial products, equally important to manufacturing and importing countries, have made the question more urgent in recent years, with the final result of bringing about the present international conference, which was called by the American Engineering Standards Committee.

In spite of the difficulties of distance and exchange, no less than eighteen of the existing twenty national standardizing bodies of the world are represented. Australia and Hungary alone are without delegates at the Conference.

Beginning about the time of the war and intensively developed in the seven or eight years since, industrial standardization has been carried on in all the industrial countries of the world. The American Engineering Standards Committee, a body representing the cooperating agency of almost 400 national organizations, including more than 150 trade associations, is paralleled in all the other countries. In fact, in some of these countries national standardization movements have become more extensive and far-reaching in their effects than that which has been accomplished here, notwithstanding the powerful support and advocacy of the movement extended by the Federal Government, notably by the Department of Commerce.

Simultaneous with the growth for the need of national standardization in each country it became obvious that many subjects of standardization were in equally important need of agreement between the different countries, to establish joint standards and permit of industrial interchange and cooperation. Under the pressure of this need, various subjects have been discussed and partly or wholly worked out within the last three or four years, aside from those in the electrical field which, as already mentioned, have been dealt with by the International Electrotechnical Commission. In the absence of more direct means of securing the required cooperation between the several countries in this work, the national standardizing bodies arranged the necessary cooperation in each of these subjects by correspondence and other informal procedure. Now, however, the scope of the work to be done in the way of agreeing upon international standards has grown so much that a more efficient machinery of cooperation is considered necessary.

A few months ago, C. le Maistre, Secretary of the British Engineering Standards Association in cooperation with W. H. Tromp and G. L. Gerard, secretaries of the Dutch and Belgium associations respectively, presented a definite proposal for the formation of an international body. This came before each of the national standardizing bodies throughout the world, and has been fully discussed by them. The present conference is an outcome of this discussion, with a view to developing details of the organization which is to be created.

At the early sessions of the conference, which opened on Thursday, April 15, the generally favorable attitude of all the nations concerned toward international cooperation was expressed by the several delegates. Recommendations as to the details of a plan of organization and the importance of the problem of its relation to the existing International Electrotechnical Commission remain to be thrashed out. The decisions of the Conference will be in the form of recommendations to the various national standardizing bodies for final decision after consultation with the industries in their respective countries.

STEADY CONDITIONS IN INDUSTRY

Industry will more than hold its own in the middle Atlantic States during the second quarter of 1926, as compared with the corresponding quarter of 1925. A survey by 25 major industries in this territory to determine freight car requirements for the next three months shows that nine industries expect an average increase in business of 12 per cent; 13 industries expect to do the same volume of trade, and 3 industries look for a slight decrease.

These facts were presented to 500 shippers and railway officials attending the tenth regular meeting of the Atlantic States Shippers Advisory Board held at Rochester, N. Y. The Board's territory covers New York, eastern Pennsylvania, New Jersey, Delaware, Maryland and the Virginia peninsula.

W. J. L. Banham, general traffic manager, Otis Elevator Company, and General Chairman of the Board, said, in analyzing the reports, that this was "the most accurate checkup of the trend of business in these states that has thus far been presented to the public.

"It is more accurate than other trade analyses," Mr. Banham explained, "because it represents the actual estimate—based on present and future orders—of the number of freight cars which will be needed by the various industries for the next three months. This information is collected by the 50 commodity committees of the Board and assembled by the American Railway Association, so that the railways may be prepared to furnish the proper

amount of transportation for a given part of the country at a given time.

"There is no doubt in my mind that shippers can look to the future with complete confidence that they can depend on a continuation of adequate and efficient transportation service. It seems to me to be highly significant that our Board has received no complaints from any industry as to car service during the last quarter."

An outstanding feature of the Atlantic States Board survey is the indication that hand-to-mouth buying will continue to characterize the relations between producer and consumer. If anything, it will more completely dominate the situation than at anytime in the last three years.

This was shown by the report on less-than-carload freight. Such freight in the New York district will increase 25 per cent, the Board's survey shows, and in the Philadelphia district the increase will be an average of 12 per cent.

Of the paper mills reporting more than two-thirds of the mills expect to do the same business during the next quarter that they did a year ago. The rest of the industry looks for a slight increase.

Meet on Stream Purification in Maryland

Representatives of paper mills in Maryland met Wednesday, April 14, 1926, at Baltimore, in the offices of Abel Wolman, Chief Engineer of the Department of Health of Maryland, to discuss stream purification as affecting their plants. The mills represented were the West Virginia Pulp and Paper Company, the Jessup & Moore Paper Company, the Congoleum-Nairn Company, and the Morocto Roofing Company.

W. G. MacNaughton, Secretary of the Technical Association of the Pulp and Paper Industry, who was present at Mr. Wolman's invitation, outlined the work accomplished by the Waste Committee of the Technical Association in cooperation with the Forests Products Laboratory, the Bureau of Standards and the paper mills of the country in reducing waste. He also outlined the measures taken in other states through the formation of committees with representatives on a national committee of the American Paper and Pulp Association, by which the work in the different parts of the country would be coordinated.

In connection with the work of the Waste Committee it was stated that in most paper mills, such as those in Maryland, it had been found that measures to prevent stream pollution had resulted in material economies to the plants.

At the close of the meeting arrangements were made for the formation of a Maryland Committee on Pulp and Paper Mill Waste Disposal with Mr. Wolman as temporary chairman and A. T. Cook, West Virginia Pulp and Paper Company; J. E. Plumstead, Jessup & Moore Paper Company; and J. R. Stewart, Congoleum-Nairn Company, as provisional members, the final arrangements to be completed at an early date. With this action there are now similar committees in at least five states—Pennsylvania, Ohio, Wisconsin, Michigan and Maryland—to deal with the question of stream purification as it bears on paper mills.

Schenectady Paper Co. Formed

SCHENECTADY, N. Y., April 17, 1926.—A charter was granted this week by the Secretary of State at Albany to the Schenectady Paper Company, Inc., of this city. The purpose of the new corporation, according to the papers, is to design household utensils, paper bags, twine, and apparel for both sexes. The capital is $10,000, consisting of shares of $100 each. Directors and their stockholdings are Harry Mont and Rebecca Mont, of Schenectady, the former owning two shares and the latter 97 shares and Joseph Reis, of Troy, owning one share.

R. S. Kellogg Speaks at Schenectady

SCHENECTADY, N. Y., April 20, 1926.—"The wood used to make the paper which carried newspaper advertising in the United States last year would make a pile a mile square and 10 feet high," said R. S. Kellogg, Secretary of the News Print Service Bureau, New York, speaking at a luncheon of the Schenectady Advertising Club today; "and," continued Mr. Kellogg, "the pages of newspaper advertising printed would more than cover the State of Massachusetts. Even the most enthusiastic advertising agent will concede that this was some "spread."

"It has been aptly said that 'the God of sales is advertising and the newspaper is his profit'. Advertising in both newspapers and periodicals has attained unprecedented volume in America and gone far beyond that in any other country in the world. America, in fact, uses more paper than all the rest of the world combined.

"The tremendous use of paper for every purpose in modern civilization has been possible only in the few decades since paper makers learned how to use wood for their raw material. Within the memory of many people yet living paper was scarce and high-priced because it was made only from rags, and the supply of rags was always inadequate. During the past forty years, paper made from wood has become increasingly cheap and abundant. Today the newspapers, magazines and books that we read, the wrapping for our packages, the great variety of tissues and much of our stationery are based upon wood. Our whole system of modern education would be impossible without an abundant supply of cheap paper, and it would be equally impossible without paper to carry on business processes.

"Paper is a forest product, and a future supply of it and of wood in many other forms in proportion to our growing needs depend upon the production and wise use of the forests of North America. This is why the United States and Canada, in cooperation, have proclaimed the period of April 18-24 as 'Forest Week', in which every effort is being made through public meetings, press and magazine articles and editorials, school programs, radio and movies to drive home the importance of forest protection to every man, woman and child in North America. The greatest single menace of our forests is fire, and three-quarters of the forest fires are caused by some form of human agency, a large proportion by pure carelessness. People who frequent the woods and have most to gain through their protection cause many destructive fires. Fishermen, hunters, campers and smokers are among the greatest menaces to the forests of the State of New York, and the same condition prevails elsewhere.

"Our problem," concluded Mr. Kellogg, "is not to find substitutes for wood but to grow enough wood to meet our needs. This can be done if proper forestry measures and fire prevention are applied to the areas of North America which are fit only for growing trees."

George S. Witham, Jr., Gets Patent

HUDSON FALLS, April 17, 1926.—George S. Witham, Jr., who is associated with his father in the management of the Union Bag and Paper Corporation, has been issued a patent by the United States patent office covering his invention of apparatus for handling vapors. The device consists of a hood designed to condense and collect vapors given off by other chemical apparatus. The patent rights of the invention have been assigned to the American Blower Company, of Detroit, Mich. The device is already in successful operation in the Hudson Falls plant.

The Union Bag and Paper Corporation recently completed its installation at its Fenimore mill. The Griffin Lumber Company had the contract for the work which included two large condenser towers, each tower being 46 feet high and 13 feet in diameter. They are constructed of long leaf yellow pine and are equipped with sprinkler sprays which will conserve the pulp stock when it is blown off. The new towers have been erected on top of two enormous vats.

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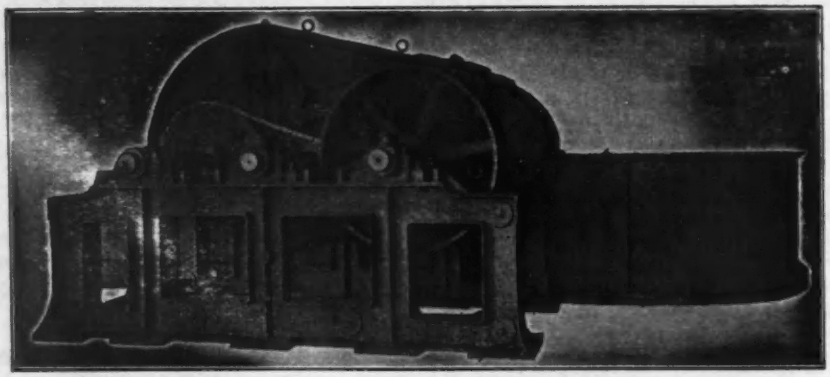

Some Interesting Facts Concerning the Noble & Wood Pulping Engine

The following are a few of the results which have been determined by actual test: Domestic Kraft pulp laps, 45% dry, fed into 1200 lb. pulper through chute from overhead, treated for beaters and dumped within ten minutes. On thoroughly dry foreign Kraft, total time elapsed was 21 minutes.

On straight wood pulp furnish, 80% groundwood, 20% sulphite, a 1200 lb. engine thoroughly pulped the stock, ready for jordans, in 20 to 30 minutes.

Many other equally good records are available upon request.

Our booklet "CUTTING PRODUCTION COSTS WITH THE PAPER PULPING ENGINE" carries a full history of the development of the pulper. Write for a copy.

THE NOBLE & WOOD MACHINE CO., Hoosick Falls, N. Y.

Section of the

Technical Association of the Pulp and Paper Industry

AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Conducted by W.G.MacNAUGHTON, Secretary

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A Method for Determining the Strength of Sulphite Wood Pulps

By R. N. Miller [1]

The obvious way to determine what kind of paper a specimen of pulp will make is to prepare from it a small-scale sheet of paper and submit the latter to the test or tests required. This line of procedure has been pursued and elaborated until today three methods of testing are used to determine the strength qualities of pulps. The methods differ primarily in the degree of beating applied to the pulp under examination and in the means of beating employed. Their distinguishing characteristics, respectively, are: (1) Beating in a jar or pebble mill; (2) beating in a small experimental beater; and (3) formation of a sheet without beating.

Lack of Uniformity

A survey of practice followed in commercial laboratories has revealed that there is no uniformity in applying any one of the three methods mentioned. Even the jar mill method, the technique for which was officially prescribed by the Technical Association a few years ago[2] (1916), has been modified in greater or less degree by most of the laboratories using it, so that no common basis remains for comparing strength values as reported by different investigators.

Many laboratories have elected to use the small beater in preference to the jar mill because the beater lends itself more readily to a determination of change in strength with increasing amounts of beating. While it is fully recognized that the small beater is rendering excellent service in mill control work, there appears to be greater possibilities in the jar mill as regards reproducibility of results. The jar mill and its method of operation can be more readily standardized than can the small beater and its complex test factors, such as condition of knife edges, rate of lowering of roll, and rate of flow of stock under the roll.

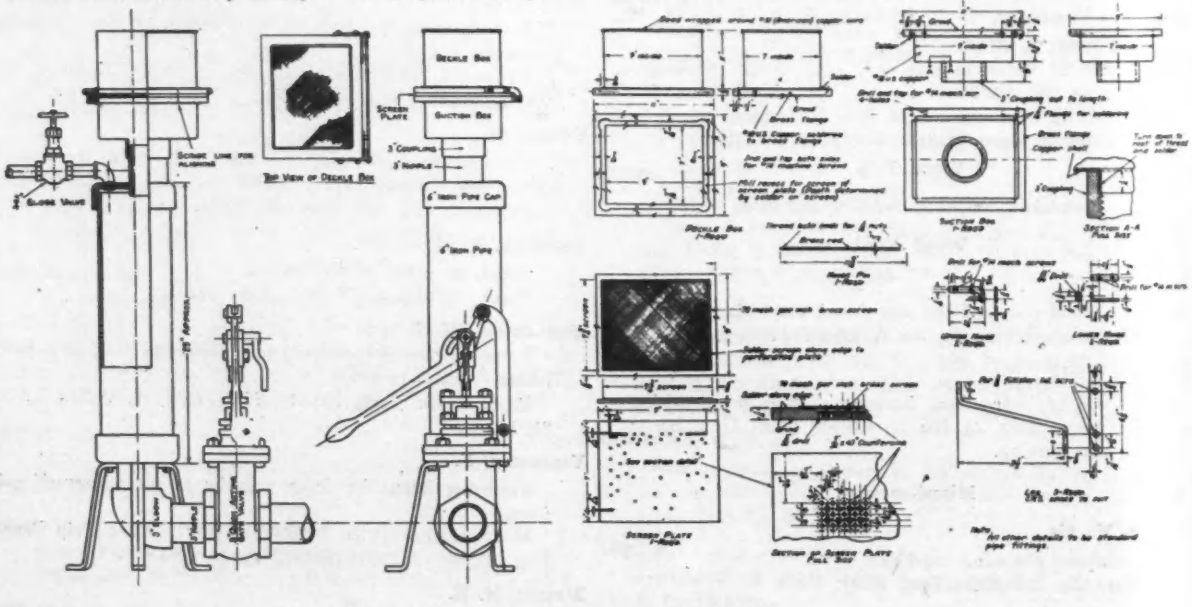
A modification of the TAPPI method to permit the beating of four different portions of pulp for 20, 40, 60, and 80 minutes, respectively, instead of a single portion for 60 minutes, although it gives excellent differentiation between pulps, is too cumbersome for ready application. The new method proposed, which is specified in detail in the next section, is the result of an effort to retain in tests the quality of reproducibility, inherent in the jar mill procedure, and to add to it a flexibility of operation that will permit the extraction of samples as beating progresses.

Beating Range Not as Great as Supposed

An extended study of the effect of various amounts of stones, water, and pulp in the jar showed that the beating range was not so great as had been supposed. In the first place, the mill works best at a limited total volume of charge, about one-third the volume of the jar, and to exceed that amount results in reduced mobility of the stones and a marked falling off in beating action. Secondly, to secure maximum beating effect the water and pulp must be so proportioned that the mixture, which should just fill the voids in the mass of stones, is not of too great density. In the TAPPI method these conditions are carefully worked out, and the beating effect, is in fact greatly in excess of that of most papermaking operations. While such a result is desirable in certain investigations, it is not necessarily so in commercial control work.

It was further noted that, despite the somewhat restricted range of beating action, there is a certain latitude in the allowable limits of **variation in relative quantities** of stones, water, and pulp that permits rapid work in the preparation of the

[1]Chemist in Forest Products, U. S. Forest Products Laboratory, Forest Service, Madison, Wisconsin.
[2]Paper, Vol. 19, No. 9, p. 11.
See also Manufacture of Pulp and Paper. Vol. 3. (Editor's Note.)



SHEET MACHINE

FIG. 1

charge and gives promise of easy duplication of results in different jar mills, provided the subsequent operations of sheet formation and drying conform rigidly to the specifications of the method. The conditions selected as standard were those which gave sufficient beating for clear distinction between types of pulp and at the same time permitted the sampling of the mill at intervals.

Although the operation of sampling at 20, 40, and 60-minute intervals produces a small change in the results at the 80-minute period from those that would otherwise be obtained, the difference is of no significance as long as it is kept in mind that the results of any test are of value only when considered in connection with the method that produces them. What is being measured is behavior under definite conditions, and as long as the conditions are reproduced, the results are a comparable measure of behavior.

The sheet machine used was designed to retain characteristic points of superiority over hand molds and to obviate the use of clamps or strips of packing. The surfaces of the the suction box, screen plate, and deckle box are ground together so that leakage is insignificant. The unusually high column of water below the wire provides rapid and uniform suction.

The operation of couching may be performed in two ways, as indicated in the specification. Confirming the statements of Wilen, it has been found that the pressure of couching has no observable effect upon the strength of the finished sheet, if the subsequent pressure is greater than that of couching.

It has been clearly shown by Cameron[3], however, that the strength of a sheet does increase with increase in pressure in finishing. For that reason the easily controlled hydraulic press was included as part of the equipment hereafter described. The particular pressure specified is one easily maintained. As the numerical value of the test is of secondary importance, provided only that comparable results are obtained, convenience has dictated the choice.

[3]Pulp & Paper Magazine, Vol. 21, No. 5 (Feb. 1, 1923), pp. 127-134.

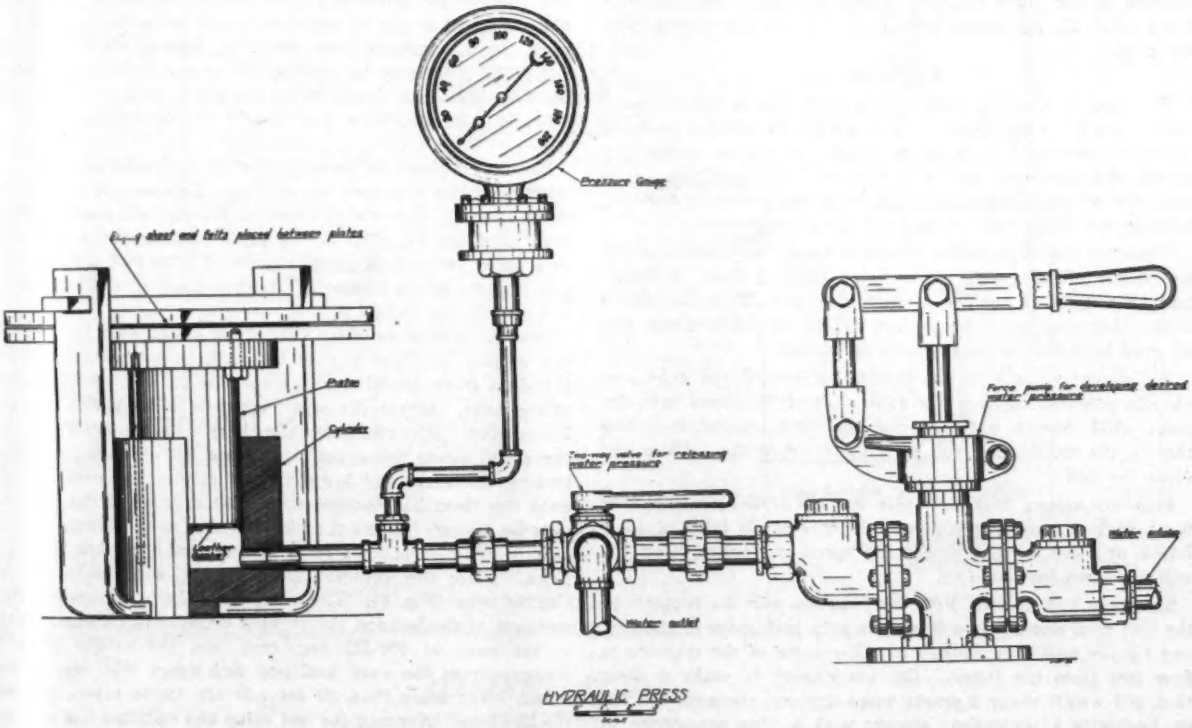
Speed and convenience combined with cheapness and simplicity make the steam dryer shown in the sketch a very desirable bit of apparatus.

The final drying in an electrically heated oven followed quickly by the testing of the hot sheet, as here advocated, has been the target of considerable criticism resulting from a difference in point of view. It is obvious that some attempt must be made to work under definite humidity conditions. It is also true that results obtained on a bonedry sheet will be different from those obtained on the same sheet under other conditions that might be chosen. When it is remembered, however, that we are considering a behavior test the numerical values for which are of little consequence except by reason of their interpretation in the light of experience, the conditions most easily reproduced and permitting the most rapid work are the logical ones to select. Testing the hot bonedry sheet is the condition most suitable from this point of view, and the limit of 30 seconds permitted for popping the sheet five times excludes the possibility of any appreciable change during the test.

The test as outlined below does not yield all the information that may be developed by the method. If considerations of time and simplicity are not paramount, the beating may be made more drastic and tests included to measure other physical properties of the sheet than is resistance to puncture (bursting strength). Experience has, in fact, shown it possible to obtain distinctions between pulps that are beyond the present power of the paper-making art to utilize.

The method here proposed may for convenience be designated the "new method." It is in reality merely a modification of the method which has been in standard use at the Forest Products Laboratory for several years and which will be described under a separate head as the "old method."

[4]Paper, Nov. 10, 1911. Ibid, Dec. 11, 1918, Vol. 23, No. 14, pp. 11-13.
[5]Pulp & Paper Magazine of Canada, Vol. 8, No. 47, Nov. 18, 1920, pp. 1181-1184. Ibid. Vol. 19, No. 3, Jan. 20, 1921, pp. 68-72.



HYDRAULIC PRESS

FIG. 2

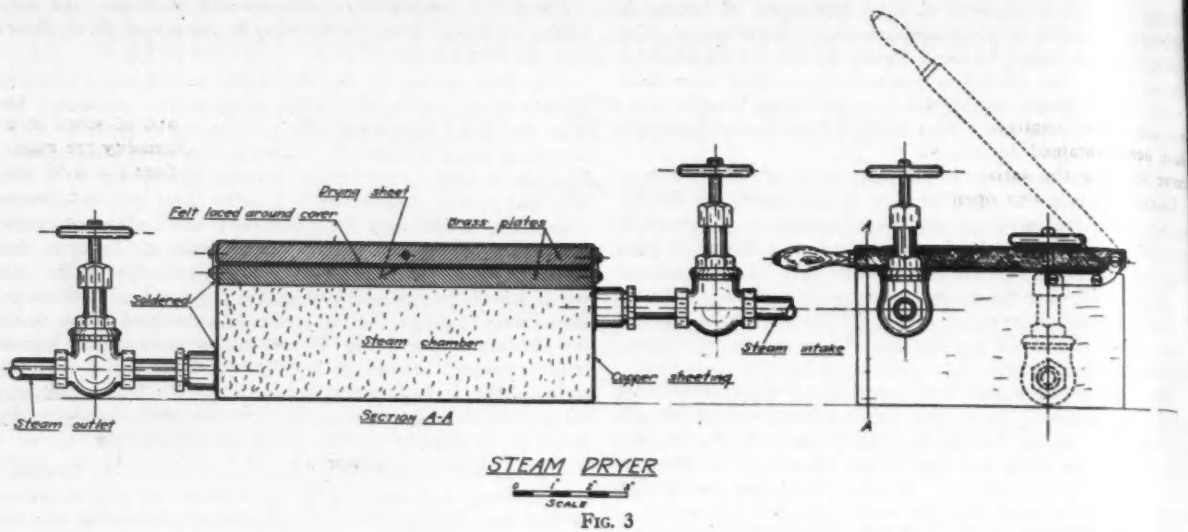


FIG. 3

In the development of both methods the published work of Sutermeister[4], Wilen[5], and other American and European investigators has been drawn upon freely.

The New Method

EQUIPMENT.—The equipment used consists of a jar or pebble mill and the necessary supplementary apparatus for forming, pressing, and drying the sheets. The Mullen tester is used for the final test of strength.

The double jar mill is used, furnished by the Abbé Engineering Company, New York and listed as size C. The capacity of each jar is approximately 16 liters.

The supplementary equipment is patterned closely after that in use in the laboratories of the Kimberly-Clark Company. It consists of the sheet machine shown in Fig. 1, the hydraulic press (Fig. 2), the steam drier (Fig. 3), and the drying oven (Fig. 4).

Procedure

First reduce the pulp sample to a condition of known moisture content. Slush stock is pressed or contrifuged and the moisture determined. If in wet laps or dry or partly dry sheets, the sample should be reduced to slush condition. It is desirable to prepare enough pulp for several runs in order to provide for check tests or samples for preservation.

CHARGING THE MILL.—The charge for one run consists of the equivalent of 90 grams of oven-dry pulp, 3 liters of water, and 10 pounds of pebbles of such size that 75 to 77 pebbles weigh that amount. The pebbles should be fairly round and of good hard flint or other quartz formation.

Weigh out enough of the pressed or centrifuged pulp previously prepared to have the equivalent of 90 grams oven-dry pulp. Add enough water so that the total amount, including that in the moist pulp, will be 3 liters. Add the pebbles and close the mill.

ROTATION OF THE MILL.—Revolve the mill at 60 r.p.m., checking turns with a revolution counter. After each 20 minutes' revolution or 1,200 revolutions at the speed prescribed, stop the mill and open for sampling.

SAMPLING THE BEATEN PULP.—To sample, stir the contents of the mill with one hand to bring the pulp and water to the top, and tip the mill over enough to allow some of the mixture to flow free from the stones. Dip out enough to make a sheet that will weigh about 2 grams when dry and trimmed. A 100 cc. beaker is a convenient dipper; with a little experience in its use the operator can hold the weight of the dry, trimmed sheet between 1.8 and 2.0 grams. After sampling, close the mill and continue the rotation until time for next sampling, and so on.

SHEET FORMATION.—Fill the lower part of the sheet machine (Fig. 1) with water, bringing the level just above the wire. Empty the sample into one of two 1-gallon measures, fill the measure with water, and pour back and forth from one measure to the other five or six times. Pour the mixture into the deckle box of the sheet machine quickly, distributing the mixture evenly by moving the mixing measure back, forth, and criss-cross. When the measure is empty, open the drain valve instantly and wide. Allow the suction to continue for 5 seconds after the water is all out of the deckle box.

COUCHING THE SHEETS.—Turn back the deckle box on its hinges and remove the plate and wire bearing the sheet. Turn the plate over on a pile of moist felts and press down. Lift the plate and wire quickly from one edge, leaving the sheet on the felt. The sheet may be couched off with a roller or rocker, if desired. The felts should be of the grade used as second press felts on book machines and should be comparatively free of nap.

PRESSING.—Cover the lower plate of the hydraulic press (Fig. 2) with a felt like that used in couching. Lay the felt bearing the sheet upon it. Cover with a similar felt and add another above that. Put the top plate of the press in place, bring the pressure up to 100 pounds gauge slowly by means of the hydraulic pump, and hold for 1 minute. Release pressure and remove the felt bearing the sheet.

DRYING.—The steam drier (Fig. 3) is heated by a jet of steam discharging into the box at atmospheric pressure. Remove the sheet from the felt and lay smothly on the top brass plate of the drier. Lower the cover, which is padded with felt, and lift at once. (Do not bump the sheet with the cover.) Turn the sheet, lower the cover, and again lift at once. Continue turning the sheet and lowering and raising the cover rapidly until the sheet has become somewhat dry, when the intervals may be longer. When the sheet is dry to the touch, trim to exactly 5 by 7 inches. In trimming, remove edge imperfections. Place the trimmed sheet in the wire basket in the electric oven (Fig. 4). The wire basket being suspended from one arm of the balance, the sheet is brought to constant weight in the oven at 100-105 deg. cent. and the weight recorded. Remove from the oven and pop five times with the Mullen tester. Not more than 30 seconds are to be taken to make the five pops. Average the test value and calculate the strength by dividing the average test by the ream weight. A table can

be set up giving the ream weight for the range of weight of the sheets that are made, so that the only calculation to be performed is a simple division. Express the result as points per pound per ream.

While the drying and testing of the sheet is going on the mill has been rotating. Repeat the operations until results have been obtained for 20, 40, 60, and 80 minutes. Plot a curve showing the variation in strength with time of beating.

Using two jars, one operator can test 2 sample in 2 hours, starting with prepared samples of known moisture content. This rate is rapid enough to keep up with production in most mills when the test is used as a control.

The Old Method

The "old method," in standard use at the Forest Products Laboratory, differs from the method just described as follows: Instead of a single portion of pulp being beaten and test samples extracted periodically, four separate portions are beaten for 20, 40, 60, and 80 minutes, respectively, in the jar mill. The mill charge contains 1 liter less of water and 10 per cent greater weight of stones than the amounts proposed above. At the conclusion of the treatment in the jar mill the entire charge is washed from the stones, diluted, and a portion made into a sheet. A sufficient amount of pulp is taken at one time to make a trimmed sheet 5 by 7 inches, weighing 1.8 to 2.0 grams. A sufficient number of sheets are made to permit testing for bursting, tensile, folding, and tearing strength. The sheets are partially dried on a hot cylinder and seasoned in a room in which the temperature and relative humidity are maintained constant at 72 deg. Fahr. (22.2 deg. Cent.) and 65 per cent, respectively. The sheets are tested in the same room. The bursting strength is determined with the Ashcroft tester.

Conclusions

In the two methods described above two distinct types of results are obtained, which suggest different applications. The old method is eminently suited to the investigation of the type to which a pulp belongs and to the correlation of cooking conditions with pulp properties. The new method is suited to the rapid mill control necessary to keep production of a certain type of pulp up to standard. The details of manipulation for both methods have been worked out with the objects of accuracy, speed, and reproducibility in mind, and have been found serviceable in the improvement of papermaking processes.

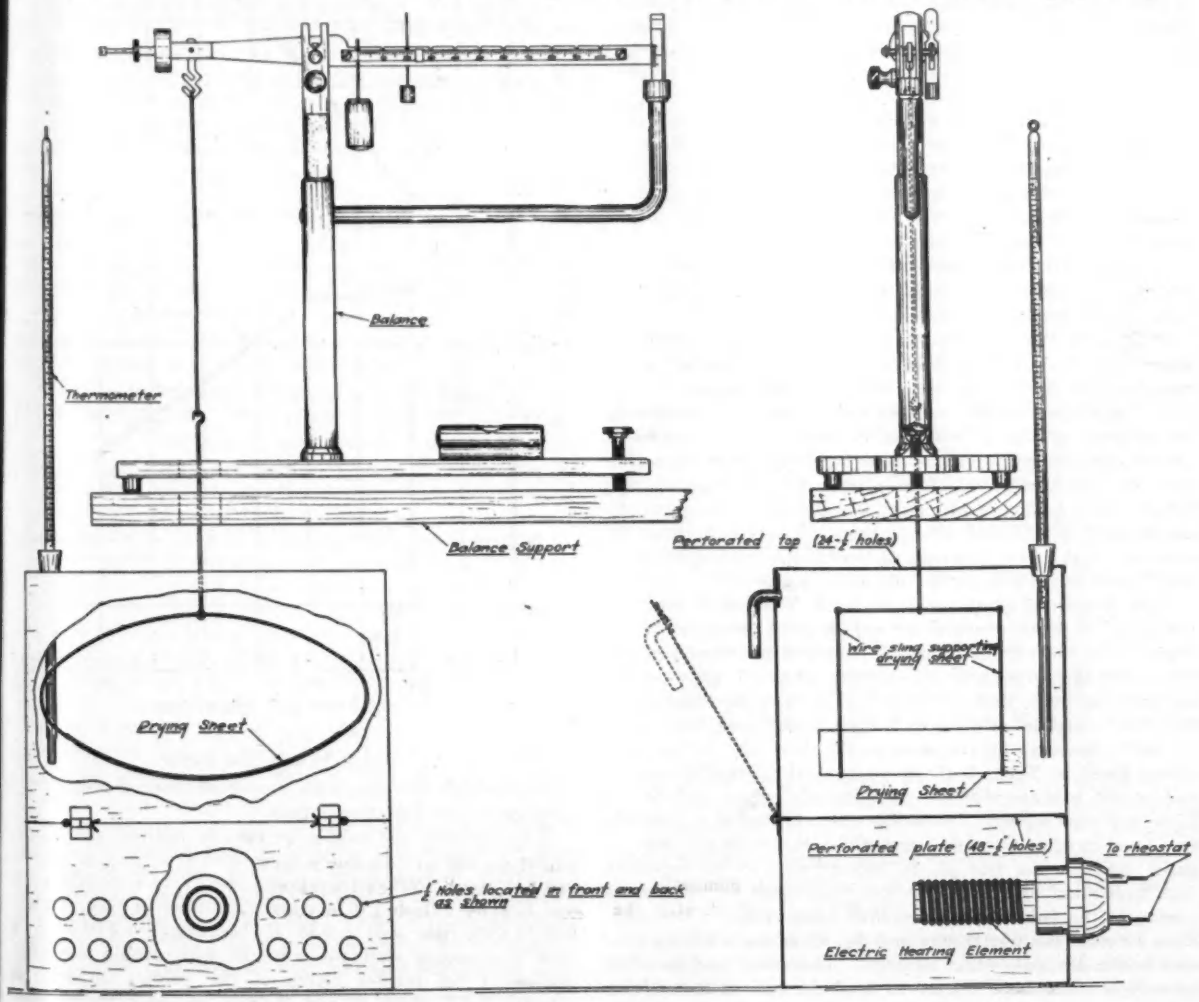


FIG. 4

Interpretation of Results in Testing Sulphite Wood Pulp

By R. N. Miller [1]

In a previous paper [2] the author has described a new method of testing pulps for strength. The method is based upon the use of a jar mill and is essentially a modification of the jar mill method which has been in use at the Forest Products Laboratory for several years. Commercial sulphite pulps widely variant in properties and representing the results of a wide variety of cooking conditions have been tested by the original or the modified method, or both, as have also a large number of sulphite pulps made experimentally at the Laboratory. A study of the test results, the conditions of cooking under which the pulps were prepared, and the qualities of the paper produced has led to the establishment of some definite relationships that, properly interpreted, afford valuable assistance in the control of cooking to produce sulphite pulps of desired properties and in estimating the papermaking possibilities of a given pulp. This report presents some of the more important test data and conclusions together with observations on bleaching and pulp dryness as affecting strength development.

A knowledge of the freeness of pulps helps in predicting their behavior on the wire of the paper machine. Actual measurements of the freeness of the pulps to be discussed are lacking. Some idea of this property was gained however, in handling the pulps. The knowledge so gained, while not quantitative, was of material assistance.

Strength Test a Basis for Classification of Pulps

In Table 1 are given the results obtained in testing a representative assortment of commercial pulps for strength by the "old" and the "new" methods. The corresponding values for paper were obtained from the samples of paper, supplied by the manufacturers, made from pulp similar to that tested.

The application of the strength test as an aid in predicting the behavior of a pulp in the paper manufacturing process is of especial interest to those who buy pulp from numerous sources. The test gives information as to how the pulp will behave with beating. Moreover, careful observation of the sheets used in the test affords some indication of how the sheet will feel. Feel, although an undefinable characteristic, is very important in judging the quality of paper.

From a general examination of Table 1 it seems that the variations in paper strength are not as great as might be expected from the variations in pulp strength determined by the test methods—particularly by the old method. But it must be borne in mind that the utility of a sheet of paper for a particular purpose may depend upon other properties than strength. Strength figures alone would class most of the bond sheets listed in Table 1 above some of the wrapping papers and would indicate that the samples of Ledger and M. F. Litho are poor papers. To confine the meaning of a pulp test to a mere prediction of the strength of the resulting sheet of paper deprives the test of its fullest value to the industry. The translation of test results into reasonable expectation of quality in the finished paper requires a knowiedge of the relations between the test results and the whole papermaking process which the pulp must undergo. The exact interpretation of tests is therefore a matter to be decided in each mill; but certain general types of behavior can be pointed out and their relation to test results established.

The strength shown after beating 60 minutes in the jar mill is developed under conditions which in severity exceed most papermaking operations. To many manufacturers beating is an expensive evil, to be avoided as much as possible, their interest lying in a pulp which will make a satisfactory grade of paper with little or no beating. If attention is centered on the results obtained after only 20 minutes' beating it is seen that the variations between pulp strength and paper strength are much less than those at 60 minutes. It is not to be inferred from this, however, that there is some fixed relation that can be automatically applied to predict from the 20 minute test the paper strength that can, with proper mechanical treatment, be developed from a particular pulp.

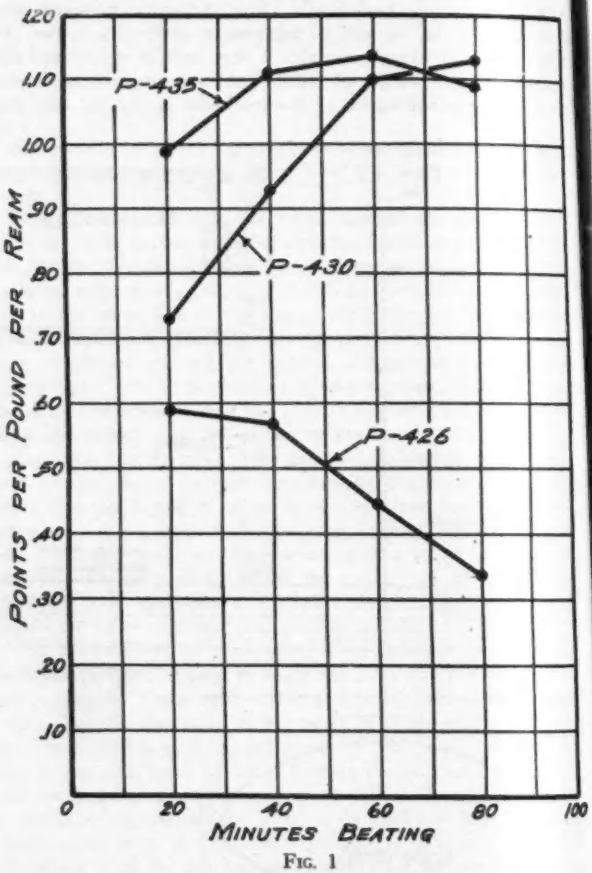


FIG. 1

Typical Strength Test Curves

If we consider the values for the old method, grouping together all pulps which reach a pop test of 0.90 or better in 60 minutes and subdividing the group into Good from 0.90 to 0.99 and Excellent from 1.00 up, and then grading the remainder: 0.80 to 0.89, Fair; 0.70 to 0.79, Mediocre; below 0.70, Poor, we have a grouping that conforms to what would be general opinion of the relative merits of the pulps. On this basis samples P-426, P-427-B, and P-440-B are poor pulps because they give low test results. Samples P-452, P-450, and P-430 are good pulps because they give high test results.

The variation of numerical values of the pop test with time of beating is of importance. The curves plotted with these variables are a measure of the change of properties of

[1] Chemist in Forest Products, U. S. Forests Laboratory, Madison, Wisconsin.
[2] PAPER TRADE JOUR. Vol. 82, No. 16, April 22, 1926, pp. 44-47.

the pulp brought about primarily by change in degree of hydration or wetness of the pulp, changes which are in large measure dependent upon the extent to which the fiber has been reduced in strength by the cooking operation that produced it or by the subsequent bleaching operations.

The three chief types of curve relating pop test results to time of beating are illustrated (Fig. 1) by Samples P-426, P-430, and P-435. That for Sample P-426 shows a relatively low value at the 20-minute beating point and an immediate decline thereafter. That for Sample P-430 shows a much higher value at 20 minutes and continues to rise throughout the test. That for Sample P-435 shows an extremely high value for the 20-minute beating period and a smaller increase, which is at the maximum in 60 minutes, after which the value declines. All test results with which the author has had experience can be considered as variations of these three types.

Sample P-435 is typical of extreme ease of hydration and P-426 of a pulp that has been very severely treated in the cooking operation. Sample P-430 can be taken as intermediate between the other two. Sample P-426 can stand no beating, Sample P-435 is not greatly improved by beating, and Sample P-430 is much improved by beating. The papers made from these pulps afford an interesting comparison. The sheet made from P-426 is a soft, weak paper. That from P-435 is rather hard and much stronger than P-426. The paper from P-430 has the strength of that from P-435 and possesses at the same time greater softness, toughness, and flexibility. All the pulps represented in the tests can be classified in the scheme for which these three furnish the skeleton.

It has been noted, further, that all curves plotted with pop-test strength values against beating time are continuous, i.e., without reversal of curvature. Any apparent tendency toward irregular ups and downs in the curve has been traceable to conditions of manipulation, and for that reason a smooth curve drawn through or near the points is always admissible.

After a pulp has been placed in the scheme with reference to the shape of the curve, it may be ranked in its class according to the magnitude of the numerical values of the test.

Relation of Strength of Pulp to Cooking Conditions

While the connection between the strength tests on a pulp and the paper made from it are frequently obscured by the manipulations of the papermaking process, the connection between cooking conditions and the strength tests can be established with greater certainty.

Investigations of the sulphite process[3] have shown that the temperatures at which a cook is made, more than any other one factor in the cook, can exert influence upon the character of the pulp produced. Furthermore, the maximum temperature reached is less important than the manner in which the maximum is reached. This rule becomes especially important in short cooks. The law underlying it is that which governs the effect of temperature on the relative rate of lignin removal and cellulose alteration during the cook. Increase of temperature, especially above 130 deg. Cent. increases the rate of cellulose alteration more than it does the rate of lignin removal.

Applying the rule, it can be said that cooks abnormally rapid in temperature rise in the early stages produce weak pulp whether the pulp is finally undercooked or overcooked. Cooks having a steady, regular temperature rise are considered normal and produce the best pulps. Cooks with an abnormally slow start will produce good pulps of either the undercooked or well-cooked type because they resemble the normal cooks at those temperatures over which effective digestion takes place.

It is found that the degree of purification of the pulp attained in cooking and also the manner of cooking employed to produce a particular degree of purification is reflected directly in the beating-strength relation for the pulp in question. Reverting to the three type samples, U-426, P-430, and P-435, we are able to tell from the form of the beating-strength curves that P-426 is overcooked, P-430 is well cooked, and P-435 is undercooked. Sample P-426 will hydrate in the beater but in so doing is ground to poorer and poorer felting qualities. Sample P-430 hydrates more rapidly, but the felting qualities are impaired more slowly. Sample P-435 hydrates so rapidly that the sheet is hard, possibly before the felting qualities are fully developed, and a tendency to brittleness is evident.

Effect of Bleaching Upon Strength of Pulp

The effect of bleaching upon the strength of pulp has been variously reported as favorable or unfavorable. Samples P-437-A and P-437-B show practically no change in either type or numerical value before and after bleaching. It is known that the manufacturers of this pulp exercise a close and intelligent control over manufacturing operations. The fact that there is no material change in either the numerical values or type of curve is in accord with the behavior of pulps made under careful control at the U. S. Forest Products Laboratory. Samples P-444-A and P-444-B show a loss in strength and a change in type of pulp with bleaching, and Samples P-451-A and P-451-B show changes in both numerical value and type. In Samples P-455-A, P-455-B, P-438-A, and P-438-B an improvement in strength is seen, accompanied by a change in type which suggests that greater flexibility brought about by better purification in the bleached pulp has improved the felting powers of the fiber. Samples P-436-A and P-436-B show a striking change in type that merits special attention.

The point of particular interest is the effect of the condition of the pulp before testing on the strength values obtained. The unbleached portion, P-436-A, was very dry and hard. This condition is reflected in the shape of the curve, indicating relatively slow hydration. The bleaching operations, however, have overcome the reluctant hydration, and the pulp gives both the curve and the numerical values for a strong, easily hydrated pulp. Such a result would easily justify a statement that bleaching strengthens a pulp, but other results show that generalities of that character are not warranted. In fact, from the results here shown, no rule can be stated governing the effect of bleaching upon strength. Nevertheless both mill results and experiment show that strong, easy-bleaching pulps can be made that suffer little or no loss of strength in the bleaching process. Pulps which lose strength markedly are not properly of the bleaching type.

Effect of Dryness of Pulp on Rate of Strength Development

It has been noted frequently that pulps which become dry, and frequently those which are machine-dried, show a much reduced rate of hydration. A striking example of the same effect in the case of a soda pulp is shown by the test record below. The "wet" sample was taken from the slush pulp, the "dry" sample from a roll of the same pulp after machine drying.

BURSTING STRENGTH TESTS OF WET AND DRY SODA PULP
(Points per pound per ream)

Minutes in Jar Mill	20	40	60	80
Strength, wet	0.63	0.85	0.99	0.99
Strength, dry	0.37	0.66	0.80	0.87

Comparison of Strength as Measured by the "Old" and "New" Methods

In comparing the strength test values obtained by the modified method with those obtained by the original, the former discriminates less widely between different pulps and tends more to conform to the results obtained on the corresponding papers. Nevertheless the differences between good and poor pulp as indicated by the new method is sufficiently distinct. There is a less clear demarcation of types of pulps than is obtained by the old method. The greater speed of manipula-

[3] Miller and Swanson PAPER TRADE JOUR. Vol. 78, No. 15, 178-181 (1924). Also Tech Asso. Papers VII (1924).

TABLE 1

STRENGTH TESTS ON COMMERCIAL SAMPLES OF PULP AND PAPER

Sample number	Material	Species	Method	PULP: Pop 20	Pop 40	Pop 60	Pop 80	Breaking length 20	Breaking length 40	Breaking length 60	Breaking length 80	Double folds 20	Double folds 40	Double folds 60	Double folds 80	Ream weight	Ream Pop	PAPER: Breaking length In	Breaking length Across	Breaking length Av.	Double folds In	Double folds Across	Double folds Av.	Tear In	Tear Across	Tear Av.	
				Points pound per ream				Meters				Numbers				Lb.	pt./lb./rm.	Meters			Number			Grams			
P-426	Bleached sulphite	Hemlock	Old	0.59	0.57	0.45	0.34	2395	2326	2156	1914	85	59	39	19	52	0.35	3790	2070	2930	8	8	8	34	40	37	Ledger
			New	0.27	0.28	0.34	0.28																				
P-427A	Unbleached sulphite	Hemlock	Old	0.65	0.74	0.70	0.57	2754	2643	2676	2418	214	157	360	255												
			New	0.41	0.51	0.55	0.62																				
P-427B	Bleached sulphite	Hemlock	Old	0.60	0.62	0.51	0.40	2718	2528	2207	1976	126	115	67	68												
			New	0.32	0.41	0.33	0.33																				
P-428	Unbleached sulphite	Spruce (?)	Old	0.62	0.70	0.74	0.58	2492	2845	2770	2344	147	244	251	285	12	0.53	7800	790	4295	196	...	...	14	16	15	Tissue
			New	0.45	0.56	0.59	0.62																				
P-430	Unbleached sulphite	Spruce	Old	0.73	0.93	1.10	1.13	3643	4610	5642	4215	236	1279	1605	2313	71	0.69	7270	2640	4955	1330	480	905	100	139	120	Manila
			New	0.46	0.73	0.84	0.89																				
P-431	Bleached sulphite	Spruce	Old	0.62	0.76	0.80	0.74	2606	3618	3298	2729	377	172	247	234	49	0.58	6470	3020	4745	220	160	190	64	59	62	Bond
			New	0.41	0.53	0.56	0.61																				
P-432	Unbleached sulphite	Spruce	Old	0.70	0.94	1.03	1.04	3444	4324	4329	4194	245	1132	1081	1346	51	0.80	8560	3330	5945	490	130	310	51	58	55	Manila
			New	0.42	0.57	0.73	0.84																				
P-433	Unbleached sulphite	Hemlock	Old	0.61	0.84	0.86	0.82	2684	3365	3204	3113	54	456	207	786	42	0.40	3760	2090	2925	15	8	12	35	30	33	W. F. Wrapper
			New	0.41	0.62	0.65	0.68																				
P-434	Unbleached sulphite	Spruce (?)	Old	0.67	0.95	1.04	1.00	3505	4036	4201	3833	126	437	983	768	28	0.72	7200	2910	5055	360	20	190	30	45	37	M. G. Wrapper
			New	0.55	0.70	0.87	0.93																				
P-435	Unbleached sulphite	Spruce (?)	Old	0.99	1.11	1.14	1.09	5210	4503	4794	4400	785	619	1006	1148	37	0.69	7110	2890	5000	500	170	335	48	50	49	Wrapper
			New	0.56	0.80	0.87	1.08																				
P-436A	Unbleached sulphite	Imported	Old	0.45	0.76	1.02	1.03	2973	4470	4242	4417	38	460	1123	1223												
			New	0.45	0.56	0.72	0.81																				
P-436B	P-436A after bleaching		Old	0.67	0.97	1.07	0.92	3269	4312	4597	3809	112	536	847	850	64	0.45	4710	2220	3465	16	13	15	61	50	56	M. F. Litho
			New	0.38	0.63	0.83	0.90																				
P-437A	Unbleached sulphite	Spruce	Old	0.72	0.93	0.98	0.97	3202	4404	3752	3693	131	550	670	900												
			New	0.55	0.72	0.75	0.65																				
P-437B	P-437A after bleaching		Old	0.74	0.96	0.99	0.97	3271	4106	3935	3894	464	1112	950	1237	47	0.60	6820	3080	4950	330	110	220	64	66	65	Bond
			New	0.65	0.76	0.82	0.64																				
P-438A	Unbleached sulphite	Spruce	Old	0.64	0.80	0.85	0.76	3025	2881	3096	2872	93	360	526	439												
			New	0.34	0.49	0.57	0.56																				
P-438B	P-438A after bleaching		Old	0.72	0.84	0.91	0.76	3023	3507	3591	2731	143	113	247	509	47	0.59	6390	3410	4905	80	50	65	50	60	55	Bond
			New	0.45	0.50	0.57	0.56																				
P-439	Bleached sulphite	Spruce	Old	0.61	0.80	0.71	0.56	2496	3119	2935	1781	89	140	210	62	47	0.65	7030	2410	4720	240	49	145	59	70	64	Bond
			New	0.35	0.47	0.45	0.39																				
P-440B	Bleached sulphite	Spruce	Old	0.43	0.54	0.53	0.44	2234	2333	2476	2303	7	24	22	15												
			New	0.36	0.35	0.34	0.29																				
P-440A	Unbleached sulphite	Spruce	Old	0.50	0.78	0.94	0.97	2689	3090	3900	3395	28	108	432	750												
			New	0.39	0.54	0.65	0.69																				
P-441	Bleached sulphite	Spruce	Old	0.61	0.80	0.90	0.89	3026	3790	4915	3608	63	435	584	653	59	0.67	7410	3480	5445	310	170	240	64	110	87	Bond
			New	0.39	0.65	0.67	0.74																				
P-442	Unbleached sulphite	Imported	Old	0.57	0.72	0.71	0.58	2557	2583	2573	2384	57	142	89	164	54	0.36	4160	1660	2910	19	9	14	69	80	75	Wrapper (?)
			New	0.38	0.56	0.73	0.83																				
P-443A	Unbleached sulphite	Spruce (?)	Old	0.54	0.89	1.11	0.77	2921	4272	4803	4122	40	533	1736	788	22	0.41	4050	1960	3005	15	4	10	30	37	34	M. G. Wrapper
			New	0.30	0.40	0.43	0.41																				
P-443B	Bleached sulphite	(?)	Old	0.68	0.64	0.55	0.53	2008	2320	2148	2023	36	80	34	72	38	0.62	6910	2980	4945	120	17	69	54	62	58	Bond (?)
			New	0.32	0.44	0.52	0.57																				
P-444A	Unbleached sulphite	50% Hemlock	Old	0.45	0.64	0.73	0.54	2033	2658	2478	2241	24	33	88	205												
		50% Spruce	New	0.38	0.51	0.61	0.60																				
P-444B	P-444A after bleaching		Old	0.50	0.68	0.66	0.58	2683	2851	2935	2371	40	58	170	79	37	0.54	6860	2560	4710	23	13	18	35	54	49	Bond
			New	0.38	0.47	0.54	0.54																				
P-446	Unbleached sulphite	White fir (?)	Old	0.53	0.78	0.95	1.04	2232	3361	4071	3740	23	257	961	605	53	0.54	3280	1420	2350	330	42	186	106	70	88	Manila
			New	0.34	0.49	0.65	0.71																				
P-450	Bleached sulphite	White fir (?)	Old	0.77	0.96	1.13	0.96	3158	4006	4342	3268	115	1263	658	902	40	0.48	5620	2600	4110	80	20	50	35	38	37	Bond
			New	0.32	0.44	0.57	0.59																				
P-447	Unbleached sulphite	Spruce	Old	0.50	0.69	0.73	0.72	2552	2678	2895	2678	16	43	106	170												
			New	0.29	0.42	0.57	0.63																				
P-448	Unbleached sulphite	Spruce (?)	Old	0.54	0.73	0.74	0.74	2243	2685	2473	3047	33	66	148	267	34	0.58	5420	3890	4655	75	90	83	40	40	40	Wrapper
			New	0.36	0.52	0.60	0.66																				
P-452	Unbleached sulphite	Spruce	Old	0.73	1.07	1.17	1.15	2999	4377	5430	4573	305	1404	2569	2121												
			New	0.46	0.68	0.84	0.91																				
P-451A	Unbleached sulphite	Spruce	Old	0.62	0.94	1.02	1.00	2751	3970	3868	3678	61	577	845	1572												
			New	0.30	0.51	0.67	0.80																				
P-451B	P-451A after bleaching		Old	0.33	0.63	0.90	0.92	2085	3074	3648	3300	22	92	223	254	52	0.61	7700	3070	5385	500	110	305	70	75	73	Bond
			New	0.40	0.61	0.65	0.68																				
P-454A	Unbleached sulphite	Spruce	Old	0.80	1.00	1.11	1.15	4270	4775	5375	4335	364	1287	2050	2087												
			New	0.56	0.76	0.94	0.89																				
P-454B	Unbleached sulphite	Hemlock	Old	0.63	0.79	0.74	0.62	2584	3295	2720	3068	50	240	133	216												
			New	0.39	0.50	0.56	0.58																				
P-455A	Unbleached sulphite	Spruce	Old	0.69	0.72	0.75	0.64	2316	2595	2195	2265	50	120	131	164												
			New	0.30	0.46	0.56	0.60																				
P-455B	P-455A after bleaching		Old	0.53	0.75	0.79	0.75	2498	2949	3065	2600	44	107	228	314												
			New	0.36	0.47	0.58	0.55																				

tion, however, makes the new method especially suitable for mill control work.

Strength Tests a Guide in Mill Control

It is not possible to take up each pulp listed and show how the interpretation of the results can be applied, because in many cases the author has no knowledge of either the pulp or paper making conditions at the particular mill. From some contacts with the industry, however, it can be stated that the entire manufacturing process can be guided by a proper correlation between strength tests and pulping conditions. In one especially interesting case where it was permitted the author to observe the development of such correlation it is now recognized as possible to cook sulphite that will give any type of strength test desired. Progress is also being made toward a regulation of the papermaking process on the basis of pulp strength indications.

Acknowledgments

The author wishes to acknowledge the liberality with which numerous mills supplied pulp and paper samples to make this work possible, and especially the generous assistance rendered by the Kimberly-Clark Company in placing at the author's disposal information gained during ten or twelve years of pulp testing experience. Especial appreciation is accorded the patient and thorough work of Mr. Julius Moehlman of the Laboratory staff, who performed the drudgery involved in the numerous tests.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Paper Making Industry

Clarence J. West, Chairman

Cellulose

Dispergation and Aggregation in General and Particularly in Their Application to Cellulose. P. P. von Weimarn. Reports of the Imper. Indus. Research Inst. Osaka, Japan, 5, No. 18, 7-185 (1925). A dispersoidal precipitate of a solid substance is a precipitate made up of individual crystals of a size smaller than 200 mm. These individual crystals may be in the form of unordered or orientated aggregates, such as threads, flakes, fibers, etc., that may be microscopic or macroscopic in size. Weimarn discusses the chemical composition and purification of precipitates and points out that "one cannot be cautious enough in accepting the various deductions made on the ground of the classical methods of pure chemistry, concerning the chemical formula of cellulose as a chemical individual." Until cellulose crystals can be grown to microscopic size at least, no purification will be sufficient to permit adequate investigations on the chemical constitution of cellulose. Tentatively, however, Weimarn accepts Herzog's X-ray data, indicating that cellulose of various origins contain largely one and the same chemical individual. Fibers of various kinds of cellulose are regarded as aggregate particles, consisting of minute ultramicro-crystals, probably rhombic, which are present in an axial arrangement, more or less parallel to each other. The superficial layers of these crystals are probably contaminated with extraneous material, as are the ultramicro-pores of the fibers. The dispersoidological properties of the various cellulose fibers depend upon: the dimensions of individual ultramicro-crystalline particles, the firmness of the bonds holding these particles together, the degree of orientation of these particles, and the nature and concentration of the impurities present in the fiber. The mechanical dispergation of different types of cellulose (with illustrations of various types of dispergators = colloid mills) are discussed in detail. To obtain the best results with dispersoid mills, cellulose should be allowed to swell in water or in salt solutions, and then should be disintegrated at —80° C., or below. Very slight dispergation of cellulose, usually less than 0.01 per cent but at times 0.1 per cent may be caused by mechanical shaking S. and S. filter mass No. 292 with 2 liters of distilled water for 1 hour. Preliminary experiments also show that cellulose may be partially dispergated by aqueous solutions containing 0.08 moles of sodium citrate per liter. Two extreme types of dispersoidal cellulose solutions exist: solutions yielding elastic continuous jellies and solutions failing to produce an aggregatory effect or gradually yielding precipitates consisting of aggregate particles. These types are connected by intermediate transition forms. The first type is discussed very fully with special reference to process of formation, structure and properties. A full abstract of the experimental part is given in Chemical Abstracts 19, 3588-9 (1925).—C. J. W.

Quantitative Study of Cellulose Dispergation in Aqueous Solutions of Ca (CNS) Saturated at Room Temperature and at 50° C. P. P.Von Weimarn and S. Otsuka. Reports of the Imper. Indus. Research Inst., Osaka, Japan, 5, No. 18, 189-200 (1925). Calcium thiocyanate solutions were prepared by saturating at 20° C. (room temperature) and at 50° C. Cellulose (S. and S. tablets) in carefully weighed amounts was allowed to remain in contact with these solutions and the mixtures were then heated at a definite temperature until complete dispergation (as determined by the ultramicroscope) had taken place. Time-temperature dispergation curves were constructed for solutions containing respectively 2, 4, 6 and 8 gr. of cellulose in 100 cc. of solution; and also for solutions containing 2 and 4 gr., respectively, of sulphite pulp. The latter failed to give transparent solutions, and the rate of dispergation was much slower than that of pure cellulose. The rate of dispergation increases with increasing temperature and decreases with increasing amounts of cellulose. A 2 per cent solution of cellulose in calcium thiocyanate, saturated at 20° C., may be obtained at 90° C. in about 7 hours, and at 110° C. in less than 2 hours. The rate of dispergation of the cellulose depends also on the previous treatment of the sample; *e.g.*, if a sample was previously shaken during 24 hours it could be completely dispergated at 80° C.—C. J. W.

Oxycellulose. H. Kauffman. Textilberichte 6, 591-2 (1925). The "boil off number" of 1 g. of cellulose in the number of cc. of 0.1 normal potassium permanganate reduced by the extract at 25° C. with 0.25 per cent sodium hydroxide, and the "oxygen number" the number of cc. required for complete oxidation of cellulose to carbon dioxide and water. Experiment indicated 1470 + 0.9 rather than the theoretical 1480.7 as the practical oxygen number of cotton. The content of cellulose in a sample can be estimated by removing the oxycellulose with sodium hydroxide and comparing the oxygen number of the residue with 1470. The boil off number of overbleached cotton cellulose indicates 939 as the molecular weight of the oxycellulose so formed.—C. J. W.

Kinetics of Cellulose Production. S. Arrhenius. Z. Elektrochemie 30, 375-6 (1924). Comparative tests on the solubility of the cellulose and encrustants of wood in the usual technical solvents—sodium hydroxide, sodium sulphite and "sulphate liquor"—show that the reactions are unimolecular The cellulose and the encrustants appear to be converted into soluble intermediate compounds with great velocity and the reaction constants of these depend on the concentration of the solution and on the temperature. The encrustants dissolve much more rapidly than the cellulose at the lower temperatures. Sodium sulphide retards solution of the cellulose and increases the rate of solution of the encrustants.—C. J. W.

Studies on the Reactions Relating to Carbohydrates and Polysaccharides. XI—The Oxidation of Cellulose. H. Hibbert and J. L. Parsons. J. Soc. Chem. Ind. 44, No. 41, 473-485T (Oct. 9, 1925), Results of experiments carried out on the oxidation of a purified, mildly bleached cotton cellulose, at 22° to 25° C., over the oxidizing range 0.01 to 2.00 atomic portions of oxygen per $C_6H_{10}O_5$ unit, with potassium, magnesium, and barium permanganates, in neutral and slightly alkaline solutions, and also with chromic acid in 90 per cent acetic acid solution, point to a reaction typical of a heterogeneous system in which there is a progressive degradation of the fibers. Disintegration of the fibers is more pronounced in neutral or slightly alkaline solutions, a fine powder being obtained when the maximum amount of oxidant is employed. Marked disintegration does not appear until over 0.10 atomic portion of oxygen is consumed, although a deterioration in strength is noticeable. Fiber losses are greater and the reaction is more rapid in neutral and slightly alkaline media than in acid solution. The losses always increase with the amount of oxidant used. With permanganates the losses are practically independent of the nature of the metallic radicle, and do not vary materially for small changes in the concentration of the solution. Carbon dioxide is one of the chief products of oxidation; the other soluble products were not investigated. Cotton cellulose when oxidized in acid solution contains a larger amount of oxidized material than when oxidized in either neutral or alkaline solution. Acelylation tests indicate that for the oxidizing range studied, the number of alcoholic groups in oxidized cellulose decreases from 3 to nearly 2 per $C_6H_{10}O_5$ unit. The solubility of oxidized cellulose in alkali is regarded as due not only to salt formation, and to reactions involving the aldehyde group, but also to a peptisation of a portion of the unattacked cellulose. The viscosities of the cuprammonium hydroxide solutions of the various oxidized celluloses are much lower than those of the original cotton. The consumption of an amount of oxidant represented by only 0.01 atomic portion of oxygen per $C_6H_{10}O_5$ unit produces a very marked decrease in viscosity. This fact, together with the alkali-solubility determinations, suggests that a portion of the unattacked cellulose (probably the layer adjacent to the oxidized portion of the fiber) is changed in some profound manner, probably the result of a depolymerization process. In acid solution the primary alcoholic group and the half-acetal linkages of the cellulose nucleus are first attacked; and in the initial stages the aldehyde group may be formed by oxidation, or hydrolysis, and then subsequently converted into carboxyl. The course of the reaction is dependent on the concentration and specific properties of the acid. Oxidation is accelerated by alkalies and retarded by dilute acids, because the former act on the initially oxidized cellulose so as to give a much larger concentration of the oxidizable components, which are more readily oxidized, under the conditions, than cellulose itself. Oxidized cellulose is regarded as a mixture of a large amount of unattacked cellulose with relatively small quantities of degraded cellulose in the form of complex oxidations products, aldehydic and acidic in nature, the amount formed depending on the conditions of the oxidation. A bibliography of 58 references is given.—A. P.-C.

The Depolymerization of Cellulose. E. Heuser and N. Hiemer. Cellulosechemie 6, 101-122 (Aug. 23); 125-132 (Sept. 13); 153-166 (Nov. 1, 1925). A comprehensive report of a study on the depolymerization of cellulose which is based on molecular weight determinations of water-soluble methylated cellulose preparations. Cellulose regenerated from cuprammonium hydroxide by the use of carbon dioxide, viscose artificial silk, hydrocellulose from viscose silk and from cuprammonium silk, saponified acetyl cellulose (Cellulose A of Hess), and cellulose dextrin were methylated according to the procedure of Denham and Woodhouse until their methoxy content was 2 to 2.5, which is the condition favoring maximum water solubility. The velocity of the reaction depends in large measure on the condition of the cellulose, that is, hydrocellulose was more easily alkylated than cotton or cuprammonium cellulose. Trimethylcellulose was prepared by the exhaustive methylation of the various preparations, but their molecular weights could not be ascertained in solutions of acetic acid or of chloroform. The molecular weights of the water-soluble preparations varied from 800 to 900 for methylated cellulose dextrin and hydrocellulose to 3280 which was the figure for methylated cuprammonium cellulose. The depolymerization value was obtained by dividing the experimentally determined molecular weight by the molecular weight of dimethylglucosan as a standard. This value was 30 to 40 for pure cotton cellulose (by extrapolation), 20 to 25 for cuprammonium cellulose (by extrapolation), 17 for cuprammonium silk, 13.5 for hydrocellulose for cuprammonium cellulose, 11.5 for regenerated viscose cellulose, 11 for saponified acetyl cellulose (Cellulose A), and 4 for cellulose dextrin. It was shown that the physical disintegration of cellulose, brought about by a certain treatment, resulted in a diminution of the molecular weight of the methylated substances. This depolymerization was demonstrated to be approximately proportional to the physical condition of the cellulose material before methylation. Depolymerization of cellulose is characterized by a definite change in the properties of the material, and there is a direct relation between these properties and the molecular weight. The experimental methods and data are given in detail.—J. L. P.

Sodium Hydroxide and Wood Pulp. J. D'Ans and A. Jaeger. Cellulosechemie, 6, 137-151 (Oct. 4, 1925). The absorption of sodium hydroxide by cellulose is considered from a new standpoint, namely as the ternary system cellulose-sodium hydroxide-water. The equilibrium relations are investigated and discussed. The experimental results agree with those of Vieweg and of Dehnert and Koenig. Alkali absorption curves, using both aqueous and alcoholic solutions, are shown for pulp and cotton at different temperatures. The temperature influence both on the absorption and solubility of cellulose in sodium hydroxide is very pronounced: both are greater with decreasing temperature. The presence of salts, such as sodium chloride and sodium carbonate, tends to increase the absorption of sodium hydroxide by cellulose. The maximum solubility is reached when the composition of the sodium hydroxide solution is about 12 per cent. Solubility measurements of bleachable and bleached wood pulps gave figures at 2° C. which were nearly double those obtained at 23° C. Viscose silk was completely soluble at the lower temperature. A new method for the quantitative precipitation of gamma cellulose by the addition of alcohol is suggested.—J. L. P.

Conversion of Wood Cellulose Into Sugar and Alcohol. Foulon. Wochbl. Papierfabr. 56, 1149-1151 (Sept. 19, 1925). In the conversion of wood to sugar and alcohol, the former is best used in a disintegrated form which has been previously leached with water to remove all water-soluble substances. Hydrochloric acid, in a closed system under pressure, is preferable to sulphuric acid for the reaction. The various steps in the conversion process are briefly described. The method of Classen, using sulphuric acid of 50 to 60° Be. is also described. Other patents of Classen involve the use of chlorine and hypochlorites, and sulphuric acid containing sulphur trioxide.—J. L. P.

Purification of Cellulose by Caustic Alakalies and Production of Mercerized Cellulose for Artificial Silk Manufacture. Dent-Deutsche Gasglulicht-Auer-Ges. Ger. Pat. 413,511. Papierfabr. 23, 505-506 (Aug. 2, 1925). The cellulose, in a finely divided condition, is purified with an alkaline solution, mercerized, and then removed from the excess of mercerizing liquor.—J. L. P.

The Effect of Light During Growth Upon the Cellulose Content of Red Spruce. G. J. Druckerman. Paper Trade J. 81, No. 5, 45-49 (July 30, 1925). No appreciable difference was found in the cellulose content of the wood of red spruce grown in the open and that grown under suppression. In the determination of cellulose by Renker's modification of the Cross and Bevan chlorination method it was found that chlorine attacks the cellulose at a definite rate after lignin has been removed. If the number of chlorinations is made large enough this rate reaches a constant value which may possibly serve as an indication of the true cellulose content.—A. P.-C.

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Conducted by THOS. J. BURKE, C.A., Sec-Treas

Standing Timber Insurance *

By W. R. Brown, Pres., The Brown Company

The insurance of standing timber against loss by fire had become an accomplished fact in foreign countries, particularly Scandinavia, before its introduction to this country. However, conditions surrounding the timberlands in these foreign countries were so different that there was little analogy to American problems, and it was not until 1916 after six years of intensive fire protection, carried on by over 30 private associations, 15 state departments, and the Forest Service, that sufficient data was available to enable a reasonable guess to be made as to the extent of the risk involved in America, and led to the formation of the first Timberland Insurance Company. Very naturally it was found that this risk varied over such widely separated areas as the Pacific Northwest, the Province of Quebec, the Michigan-Wisconsin Region, and the New England States, but during the years of 1910-15, as far as data was obtainable, the maximum loss in any one year, in any of these regions, did not exceed one-half of 1 per cent and in many instances was much less. This compared favorably with the usual loss by fire in other forms of property and gave a promise of being an insurable risk, provided sufficient area was obtainable, sufficient protection was afforded, and the average loss sustained. However, the extraordinarily dry and dangerous year which is bound to come along periodically, still remained the menace as it always will, and no insurance company dared to enter the business.

Decide to Form Insurance Company

In the winter of 1917, a group of New Hampshire timberland owners, after careful consideration of the data then available, decided that as the loss by fire in the New England states was the best risk in the country and the total loss by conflagration remote, and as the loss probably would not exceed one-half of 1 per cent, and the cost of management an additional one-half of 1 per cent (which is the usual cost of doing business in insurance companies), that there was a possibility of writing a limited line of insurance on standing timber in the New England region at a 2 per cent premium. Consequently a group of nine companies and private individuals agreed to form the Timber Lands Mutual Fire Insurance Company of Portsmouth, N. H., of which I had the honor to be president, and subscribed a $50,000 guarantee reserve. Subsequently a bill to incorporate this company was introduced and passed by the New Hampshire Legislature of 1917 for the purpose of insuring standing timber against loss and damage by fire, lightning, or other destructive elements or causes. This company did business for two years within the states of New Hampshire, Massachusetts and Vermont, writing a line of $327,000 among 67 policy holders, on merchantable timber, young growth and plantations, at a flat premium rate of 2 per cent, which after the first year was reduced to 1¾ per cent, and a further reduction to 1½ per cent was in contemplation when the business was sold out to the Globe-Rutgers Co., who assumed all the engagements and were able to offer a larger line to the policy holders more adequately secured by capital reserve. In 1918, the capital invested was returned to the incorporators together with 5 per cent yearly interest for two years, and the company dissolved.

Some Valuable Lessons Learned

By this little essay into the fields of standing timber insurance, a number of lessons were learned which perhaps will be of value for the future.

It was learned, for instance, that the actual premiums paid for most kinds of insurance, pay little more than the losses and the cost of writing it, and that the real profit in the insurance business is made through the investment of the funds obtained, in other forms of high interest paying securities, which a small mutual company, such as the above, was estopped by their charter from doing, even had they the means and opportunity.

It was found that the laws permitting the formation of new insurance companies in the various states are stringent and exacting, and the formation of new companies is jealously watched by the old line ones already in the business. It is very difficult for a new company to do business in some states, except at a great expense and trouble to comply with their laws, and usually a large reserve of capital is required.

The profession of forest actuary having not yet come into existence it was found that the probable relative danger in various sites and from various causes, and the extent to which fire would run in old growth, second growth or plantations, had not been determined, and that these risks had to be estimated by reasonable guesses as the company went along.

It was found that the high rates of a small company were not attractive to large timberland owners, because in proportion to the extent of the size of the timberland owners, they were insuring themselves at less than one-half of 1 per cent, and were not interested even at 1 per cent, if it were offered.

It was found that standing timber insurance appealed to certain classes of people, particularly owners, who had half grown pine lots, on which in the course of a few years, the timber would mature to merchantable size. By effecting insurance on such immature timber, until it had market value, they assured themselves of a considerable property value, otherwise intangible.

Borrowing Greatly Facilitated

Also timberland owners who desired to borrow from the bank

* From Journal of Forestry.

on their holdings, found such borrowing greatly facilitated and a lower rate of interest secured, by filing with the bank a standing timber insurance policy for the lot in question. Some banks even made insurance obligatory, when they learned that timberland insurance was available.

It was found that some people wished to hand down their property in standing timber to their relatives, assured from being wiped out by fire, and were willing to pay the premium for the benefit of their legatees.

It was found by experience that old growth timber and timber that had reached a merchantable size was a much better risk than plantations or immature timber, for the reason that, in proportion to the size the possibility of salvage was greater. Old growth was but slightly affected by the ordinary ground fire, whereas plantations and young trees of a few inches in diameter were completely destroyed by even a light fire, which ran with more briskness in young trees than in mature growth.

It was also found that the boundary lines on areas on which insurance was asked, were often obscure, uncertain and badly run, and that there was much difficulty in locating the exact areas. That an accurate estimate of the stand was not obtainable without great expense, and often resulted in a wide difference of opinion, between the owner and insurance company, concerning amounts and values. Consequently, it was decided to accept owners' estimate as to area, amounts and value, after a general survey of the property had been made, with a view of determining the risk involved. A co-insurance clause was inserted in the policy, which bound the policyholder to an approximately correct estimate and valuation of his stand to within 10 per cent, so that beyond 110 per cent of true value, he would be paying a useless premium. Under 90 per cent of true value, he would be the loser in the proportion, that the amount that he undervalued his stand, less 10 per cent, bore to the actual amount found by a careful estimate made after the fire, by agents of the company.

Original Areas, Estimates, Etc.

It was found advisable to attach to the policy the original areas, estimates, and values, made by the owner in a form of a written statement. For plantations or unmerchantable young growth, this statement gave the pre-determined value per acre set upon it as the basis of loss settlement. For second cuttings or old growth, this statement gave a fair market stumpage estimate and value of all merchantable hardwood and softwood on the lands and did not include land values in any way, or young growth, too small to be merchantable. Final settlement was made on the actual value of the timber destroyed as found by the company adjuster, with the co-insurance clause working as described above. In case of a dispute over the salvage value of timber left, the company reserved the right to pay the value of the lot as set forth by the owner and attached to the policy, and the company could salvage it for its own account, if it so desired. The regular standard policy of insurance authorized in New Hampshire was used, with a rider concerning the special clauses applicable to timber insurance.

It was found that the best policy for a new company was to scatter its risks widely in relatively small units. Each unit was insured for its full value. A larger unit area could be taken, if insured, for only part of its value, the owner acting as the co-insurer of the rest. These units were kept one-half mile apart if in a continually wooded area, and in broken country were separated by a farm, lake, sizable river or other fire break.

It was found that an additional premium charge was required for a policy taken out only for the dry season or for carrying the owner over a dry season, when the owner decided to cancel his policy at the close of it and not give the company the benefit of the wet season.

It was found that care must be exercised in the acceptance of risks and a higher premium charged or avoidance made of land, which was close to the railroad right-of-way, close to recent slash, close to portable mills, close to large cities and picnic grounds, and some other unfavorable environments.

Periodical Inspections Necessary

It was found that periodical inspections were necessary to determine whether owners had added to the risk of their lands by cutting and slash, the establishment of portable mill, putting up dangerous buildings, etc., and a clause was inserted in the policy, that such added risks vitiated the insurance, unless special permits were secured in advance for them.

It was found that the proximity of timberland to market and the ease of operations had not only an effect on its value, but upon its insurability, as the possibility of salvage on remote land was much less.

It was found that the old growth proved the best risk both on account of its resistance to the spread of fire and the especial care that was taken of it, and on account of the large salvage return possible by prompt logging, if in a reasonable proximity to market. Complete loss was rare. Fire did not eat into old trees, often hardly penetrating the bark 10 feet from the ground. Eighty-seven and four-tenths per cent of the risks were written in old growth. Second cuttings were found to be more dangerous on account of the large amount of slash commonly on the ground for five to ten years, and the presence of many immature trees that constituted a complete loss when burned. Also on account of its low value, this land was less adequately protected. However, when burned its loss was correspondingly low. Eight and four-tenths per cent were written in second cuttings. Plantations were the greatest risk, being subject to a complete destruction by a slight fire. Four and two-tenths per cent were written in plantations.

Varying Rates Should Be Charged

From all of the above and from much we did not find, but which will develop in actual practice, it can be seen that in the future varying rates should be charged for each risk, based on the size, position and character of the tract, the size, distribution and condition of the species found upon it, the extent of protection afforded, and the accumulated experience gained by all insurance companies doing this line of business, according to their actuarial tables. This immediately brings to the fore the necessity of professional standing timber insurance actuaries, who should be trained foresters having had previous practical experience in timber cruising, estimating, surveying, operating and trading.

There are now three companies actively engaged in writing forest fire insurance in America, the Automobile Insurance Company of Hartford, Globe & Rutgers of New York, and the Home Insurance Company of New York. A fourth, the Commercial Union of London, has had the matter under consideration. Because of the want of extensive data on the subject, companies are strict in their requirements, and charge a high rate of premium. Rates usually vary from 1¼ to 2½ per cent for merchantable standing timber, and from 2 to 3½ per cent on plantation insurance.

Merchantable timber is defined as timber six inches or greater in diameter at four and one-half feet from the ground. The term plantation is construed to mean living trees planted by hand as distinguished from second cutting, which is coming from seeding without personal supervision and planting. Standing timber is usually valued at present cost, and the plantation at the cost of planting, plus simple interest to date.

Basic rates are made for usual risks and an extra charge made for unusual risks, such as proximity to railroads, recent slash, etc., and credits are given for approved state fire protection, mountain lookout stations, patrol, fire-fighting apparatus, placarding, etc.

Risks are written upon application made out and signed by the assured, which application becomes a warranty under the contract, a photostatic copy being attached to the policy. The applicant upon signing the application assuming that he is already familiar with the standard fire contract of his state, and is fully informed regarding the nature of the policy he will receive, if his application is accepted, and said policy issued. Some companies express their desire not to insure lines greater than $25,000, subject to one fire. The insurance now being offered cover the six

New England states, and New York, Pennsylvania, New Jersey, Delaware and Maryland.

It should be here noted that in the past few years much additional information has been gathered as to the extent and risk of fire in the Eastern States. Also that great strides have been made in the ability to cope with fire when it does occur. Intensive studies are also being made by some of the state departments and by the federal government, concerning the relationship between moisture content of the air, and the springing up of forest fires, whereby an observation of the weather conditions, wind, evaporation, the dryness of the duff as shown by the duff hygrometer, and other elements, will give reasonable warning in advance of approaching seasons of danger, and give opportunity to send out warnings and take extra precautions.

From the above, I believe that if standing timber insurance is to be effective on a large scale, it must have the backing of either immense capital or the subsidy of the state or federal government for a sufficient period, to prove the actual smallness of the risk involved over great areas, and enable it to get upon its feet.

In order to bring in great tracts of territory, the premiums offered must be very low and correspond somewhat to those offered to factory mutuals. Probably this result would be brought about gradually by the old line insurance companies extending their business, as experience gives them courage to reduce their premiums, coincident with extended area. In order that standing timber insurance may become a fact, a standard expenditure per acre for fire protection must be insisted upon by law, wherever fire insurance is carried, to bring in the recalcitrant owner, whose neglected land would be a menace to the community as a whole. In New England one cent per acre per year seems to render satisfactory results.

The actual carrying on of protection of land from fire should be avoided by insurance companies on account of the legal liabilities involved in the responsibility assumed.

A portion of the cost of protection of forest land from fire should be borne by the public, as the fire starts often from natural causes like lightning, etc., and the loss in a general conflagration affects not only the owner of the timber and his industry, but all other industries in the state, and serves to depreciate all values in the state in general. Hurricane, insect and fungus devastations should not be included in the policy until statistics covering the risk have been established, and this is doubtful.

I hope that statistics covering timber loss by fire will be started soon by an actuarial board made up of the State Foresters of the Eastern States associated with representatives from the fire insurance companies, the U. S. Forest Service, and others. This board should correlate the data and experiences gathered from all sources and publish them with conclusions for the benefit of the country at large.

I believe that timber insurance will be taught as a course in all forestry schools one of these days, as part of the training of a forester, and that sooner or later, the profession of forest actuary will become common with practice extending over a wide field of standing timber insurance written by most of our old line companies.

When we consider that standing timber is one of the five great values in our country, and that this is the only form of property which has been uninsurable in the past, due to certain misconceptions as to the extent of the risk and the vast capital required to go in for it, it will be seen what an immense field of new insurance lies ahead of the few companies who have had courage enough already to write limited risks, and when the field is actually covered, what immense assistance forest fire insurance will be to the practice of forestry.

Cost of a Short-Sighted Power Policy*

By Andrew F. Sheehan

Lack of interest on the part of the management is very often the real cause of excessive power costs in industrial plants. Of course, in many industries the power cost is small in relation to total production cost and the power plant is not considered worth any great amount of managerial attention. But in other industries, notably the pulp and paper industry, the power cost is often as high as 40 per cent of the manufacturing cost.

The Manager's Responsibility for Power

It is not necessary that the manager interest himself in the theory of power generation or the routine of the power plant, but only in the cost figures. Any time spent in the latter direction will prove well worth while.

I was at one time chief engineer of a paper mill whose output was 20 tons daily and the coal consumption around 1¼ tons of coal per ton of paper produced. I considered this figure rather high and set about reducing it as far as possible without interfering with the regular schedule. By the substitution of exhaust steam in place of live steam on the largest paper machine, the coal consumption was reduced two tons per day and the cost of making this change was only $100 for piping and labor. This meant a reduction in operating cost of about $400 per month and no overhead charges were involved which might reduce the net saving.

The manager was favorably impressed with the improved showing in this department and told me that he had been considering the plan of installing a new boiler of the water-tube type which would save coal by replacing our four boilers with the fire-tube type. I asked that this plan be postponed long enough for me to make a complete survey of conditions, as it involved the expenditure of about $21,500 for the boiler, cost of erection and enlargement of the boiler house.

We had at the time four 150 hp. boilers, and one 500 hp. unit was to replace these. A reduction of 10 per cent of our coal bill was possible by this method and the manager was enthusiastic over the plan, as our old boilers were 20 years old and were wasteful of fuel. But in the engine room I found opportunities for reducing costs that were of greater magnitude than the 10 per cent saving to be made in the boiler room.

Our main engine was a single cylinder Corliss and was operated condensing; the coal required for its operation was about 2½ lb. per hp. hr. The engine was carrying an overload and consequently the water rate was high, around 20 lb. per hp. hr. The evaporation rate was 8 lb. of water per lb. of coal, which gave the figure of 2½ lb. of coal per hp. hr. Our load being 400 hp., the engine used 1,000 lbs. of coal per hr., or 12 tons per day of 24 hrs.

In the machine room, the two paper machines were driven by individual engines of the slide valve type, taking steam at 125 lb. pressure and exhausting at 10 lb. back pressure into the driers. These two engines developed a total of 110 hp. and the total steam flow to the driers was 6,000 lb. per hr., including the live steam which was used to help out the engine exhaust. I allocated the amounts of steam shown in Table 1 to each of the various units in the mill.

TABLE 1

ALLOCATION OF STEAM TO UNITS

Unit	Lb. Steam per Hr.
Main engine	8,000
Engines on Paper Machine	5,000*
Live Steam for Driers	1,000
Condenser and feed pump	1,333
Total	15,333

* Water estimated to be 45 lb. per hp.

* From Management & Administration.

The total steam required was 15,333 lb. per hr., after the reduction of two tons of coal daily had been made. Water evaporated per lb. of coal was 8 lb., and coal consumption 23 tons per day. This mill operated 300 days a year and as the coal cost $7 per short ton the annual fuel bill was $23 \times 300 \times 7 = \$48,300$. With a saving of 10 per cent possible by the installation of the new boiler the maximum cost reduction along that line was $4,830 per year. To make this saving, the company would have to invest $21,500, and allowing fixed charges of 12½ per cent, $2,687 must be deducted from the fuel saving, which brings the net saving down to $2,143 per year. The net return on the investment that the management intended to make figured only 10 per cent of the capital, and so I submitted the following plan which would save more fuel without so large an initial outlay.

In any industrial plant requiring process steam, the power from engines that exhaust into driers, or similar processes, is obtained at practically no fuel cost. Over 90 per cent of the heat in the steam is still in the exhaust as it leaves the engine, and if used in process this heat is reclaimed, while in the case of a condensing engine this latent heat is lost. The plan of exhausting from the machine room engines to the driers was sound engineering as far as it went, but the principle was not carried out to the fullest extent with the equipment we had. Also, our Corliss engine, using 52 per cent of our total coal consumption, wasted 90 per cent or more of the heat supplied to it, as it exhausted into a condenser. To use all of this exhaust in the manufacturing process would have been impossible, as no demand for so much steam existed and the engine would not be able to carry the load if operated against back pressure.

Now as to the savings my plan would effect and the cost of putting it into practice: The drying process required 6,000 lb. of steam per hr. under any system of power supply, so this was the starting point. The paper machines were to be motor-driven and the current was to be generated by means of the Corliss engine, which would operate at a reduced load and exhaust 6,000 lbs. of steam per hr. to the driers, the load being balanced so that there would be no excess exhaust from this engine except that required for feed water heating. The water rate of the Corliss engine would be about 28 lb. per hp. hr. under these conditions and the load carried would be $\frac{6,000}{28} = 214$ hp., practically double the amount of power previously derived from the process steam. At this output the Corliss engine would be operating at its economical load.

Supplying Remaining Power Needs

Since the total power requirements for the mill were 400 hp. on the main shaft and 110 hp. in the machine room, there was a balance of $510 - 214 = 296$ hp. to be supplied in some way. If a condensing unaflow engine were installed, this power would be generated at a water rate of 13 lb. per hp. hr., thus calling for $296 \times 13 = 3,848$ lb. of steam per hr. The previously installed feed pumps and condenser pump, using 1,333 lb. per hr. at a rate of 60 lb. per hp., showed a power input of $\frac{1,333}{60} = 22$ hp. Replacing these pumps with motor-driven units whose power source was the unaflow engine, would give us the 22 hp. for only $22 \times 13 = 286$ lb. of steam per hr., or a saving of 80 per cent in auxiliary power cost.

The total steam consumption of the mill would be 6,000 lb. + 3,848 + 286 = 10,134 lb., as compared with 15,333 lb. per hr.; a reduction of 5,199 lb. per hr., or one-third the total steam consumption. This meant that one-third the coal bill would be saved and this saving would amount to $\frac{\$48,300}{3} = \$16,100$ annually.

The cost of a 300 hp. unaflow engine would be around $14,000, including cost of foundation. But it would not be necessary to invest this amount of money at the start, as one well-known engine builder guarantees to install his engines with a definite understanding that they will reduce costs. The engines built by him are installed on a very small cash payment, the balance of the purchase price not being paid till the engines effect the guaranteed saving. For instance, where such a large saving as $16,000 annually is possible, the cash payment is not over $1,000 and I can name one case where the initial payment was only one dollar, a $25,000 engine being installed and saving $26,000 a year in coal costs.

Amount of Investment Involved

Thus the engine would pay for itself in less than a year, the monthly saving being turned over to the engine builder till the engine was paid for. Motors could be installed on the paper machines at a cost of $2,500 and motor-driven pumps could be installed for $1,500. The total initial investment would be only the first payment of $1,000 on the engine, plus $2,500 for motors and $1,500 for electric pumps, making necessary an outlay of $5,000 which would effect a saving each year of $16,100 in coal costs.

At the end of the first year of operation under this plan the net saving would be the coal saving minus 12½ per cent fixed charges on the $4,000 worth of electric equipment, or $15,600, and this saving in one year alone would pay off the engine cost. After the first year, the saving of $15,600 annually would return three times the amount of the original investment every year, amounting to a dividend of 312 per cent on the invested capital. The engine cost could not be added to the investment, as only $1,000 of the firm's money would be spent for it, the rest being paid for by money that would have to be spent for coal if the engine were not installed.

But when these figures were placed before the manager, he told me that the contract for the new boiler had already been signed and that no more money would be spent on the power plant for some years to come. In vain I pointed out that the money invested in the boiler was earning only 10 per cent and that my plan would show three times as great a fuel saving at a capital outlay only one-fourth as much, compared with his method. Furthermore, had my plan been carried out, he could have had the new boiler also by waiting a year and a half, as the savings in this period would be over $22,000, enough for a new boiler without drawing on the firm's capital.

But because the manager did not consider power plant problems worthy of close study, he fell into an error which will cost his firm a big sum of money in the next few years. Had the foregoing plan been adopted and the savings each year been applied to further improvements, such as underfeed stokers for the boiler room the second year, replacing the old Corliss engine with another unaflow unit the third year, and so on, the cost-cutting process could have continued to a point where the plant would have been a model of efficiency.

New Catalogue of Steam Turbine Instrument

The Uehling Instrument Company, 473 Getty avenue, Paterson, N. J., is distributing a new catalogue, No. 150, covering its combined barometer and vacuum recorder for use with steam turbines. This instrument records the absolute back pressure of the turbine exhaust, that is, the true vacuum corrected for barometric changes. The importance of this reading is apparent when it is considered that a drop of one inch of mercury in the turbine's back pressure necessitates an increased steam consumption of 5 to 15 per cent per kilowatt-hour produced, depending upon the existing back pressure and the type of turbine. High accuracy is claimed for the instrument because of the mercury column principle employed. Great legibility and sensitiveness are secured by recording only the working part of the range (either 25 to 31 inches or 20 to 31 inches of mercury) over nearly the full face of the chart. The bulletin includes valuable turbine performance data, a list of users, typical charts, sectional views and dimension diagrams, including reference to a new model instrument for flush mounting on panel boards. Six pages, 8½ x 11 inches.

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CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Cincinnati, Ohio—The Western Paper Goods Company, Third and Lock streets, has completed plans and will soon begin the construction of a new addition to its plant on the Paddock Road, fronting on the line of the Baltimore & Ohio Railroad; it will be one-story, brick and concrete, estimated to cost about $300,000, with equipment. F. E. Berold is president.

Skaneateles Falls, N. Y.—Fire, April 14, destroyed a building at the local mill of the Draycott Mills, Inc., manufacturer of paper roofing, etc., with loss reported at $50,000, a considerable portion said to be represented by stock. Headquarters are at Fulton, N. Y.

Astoria, Ore.—The Pacific News Print Mills, Inc., Astoria, care of the Delta Engineering Company, Portland, Ore., has plans under consideration for the construction of a new pulp and paper mill on the Youngs River, where a tract of 2600 ft. of water front has been taken over. The initial plant will consist of a number of buildings with power house, machine shop and auxiliary structures, estimated to cost in excess of $1,500,000, with machinery. The complete project will cost more than twice this sum. A total plot of 50 acres of land has been secured for the mill. The Delta company, previously noted, will be in charge of the engineering work.

Kansas City, Mo.—The Timmons Wall Paper Company, 1005 McGee street, C. A. Timmons, head, has completed plans for the erection of a new three-story building at 1012-14 Locust street, to be 48 x 135 feet, estimated to cost $65,000. It will be used primarily for storage and distributing service. General building contract has been let to James E. Taylor, Reliance Building. H. A. Drake, Reliance Building, is architect.

International Falls, Minn.—The proposed paper and pulp mill project of the Minnesota and Ontario Paper Company, Builders' Exchange Building, Minneapolis, Minn., will include a hydro-electric power project on the La Seine River in Canada, near International Falls, comprising three individual units, designed for a capacity of 27,000 hp., to be used for mill operations. The company will proceed with the erection of its proposed paper plant at International Falls, developing for large output. The plant will be equipped for a capacity of about 250 tons per day. The entire project is expected to cost in excess of $6,000,000 and to provide funds, in part, the company has disposed of a bond issue of $4,000,000. Other financing will be arranged later. The company is a subsidiary of the Backus-Brooks Company, same address; E. W. Backus is president.

Richmond, Va.—Merger plans have been arranged by the Virginia Paper Company, Anderson-Wilson Paper Company, Southern Paper Company and the R. A. Couthorne Paper Company, under the first noted name. The new organization plans for general expansion in operations, including increase in mill facilities for larger output.

Rhinelander, Wis.—The Daniels Manufacturing Company, West Kemp street, manufacturer of paper specialties, has plans under way and expects to ask bids early in May for the erection of a new one-story and basement addition to its mill, brick and reinforced-concrete, 60 x 110 feet, reported to cost about $45,000. L. A. Deguerre, Mead-Whittier Building, Wisconsin Rapids, Wis., is engineer in charge.

Tulsa, Okla.—The Tulsa Paper Company, 124 East Brady street, is said to be considering enlargements in its plant, including the installation of equipment for the manufacture of paper boxes and containers.

San Francisco, Cal.—The Traung Label and Lithograph Company, 962 Battery street, will ask bids at once for its proposed paper specialty and printing plant, to be two-story and basement, reinforced-concrete, located on Pacific street, between Battery and Front streets, estimated to cost about $160,000, with equipment. Couchot & Rosenwald, 60 Sansome street, San Francisco, are architects.

Carlstadt, N. J.—The Hurley Playing Card Company has plans under way for enlargements in its paper specialty plant and will soon begin the installation of considerable additional machinery; a preferred stock issue has been sold to carry out the project. J. G. Gosselin is manager.

Victoria, B. C.—The Victoria Roofing and Paper Company is perfecting plans for the early construction of a new addition to its local mill with the installation of additional machinery for large increase in capacity. The expansion is estimated to cost $200,000. The company is also considering the establishsing of a new division for the production of cardboard specialties as well as other heavy ply stocks.

Sault Ste. Marie, Ont.—The Spanish River Pulp and Paper Mills, Ltd., Huron street, is reported to have plans under way for a new pressing mill addition to cost close to $100,000, with machinery. It is proposed to begin work at an early date.

New Companies

Chicago, Ill.—The Papier Mache Products Company, 421 South LaSalle street, has been incorporated with a capital of $10,000, to manufacture paper specialties. The incorporators are Edward R. Newmann, George S. Pines and Richard R. Klein.

New York, N. Y.—The Stalwart Paper Company has been incorporated with a capital of 100 shares of stock, no par value, to manufacture and deal in paper products. The incorporators are F. E. Varriale, N. Marks and L. B. Kanter. The company is represented by Lewis, Marks & Kanter, 50 Court Street, Brooklyn.

Richmond, Va.—The Old Dominion Manufacturing Company has been organized to manufacture paper bags and other paper containers. It is proposed to operate a local mill. The company is headed by Nathan Flax, 1501 North 17th street, Richmond.

Gardner, Mass.—The Gardner Fibre Company has been incorporated with a capital of $100,000, to manufacture fibre goods. A local plant will be operated. Frank A. Nichols is president, and Philip H. Loughlin, Main street, Westminster, Mass., treasurer.

Brooklyn, N. Y.—The Regal Box Company has been incorporated with a capital of $50,000, to manufacture paper boxes, cartons, etc. The incorporators are A. Kleeman, L. Stimel and I. J. W. Marx. The company is represented by Nathan Friedman, 305 Broadway, New York.

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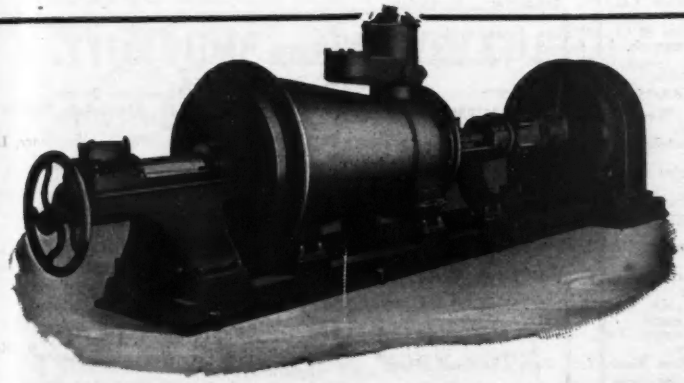

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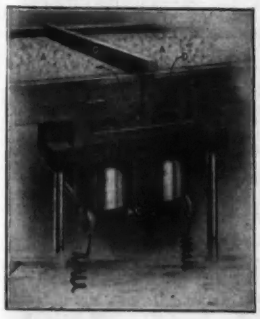

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Printing paper .....191 rolls, 12 bls., 133 cs.
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Oxford University Press, Samaria, Liverpool, 5 cs.
Titan Shipping Co., Olympic, Southampton, 12 cs.
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SURFACE COATED PAPER

Hensel, Bruckman & Lorbacher, Cleveland, Hamburg, 3 cs.
P. C. Zuhlke, Maine, Antwerp, 70 cs.
Gevaert Co. of America, Maine, Antwerp, 34 cs.
Gevaert Co. of America, Pennland, Antwerp, 101 cs.
P. C. Zuhlke, Pennland, Antwerp, 94 cs.
P. Puttman, Pennland, Antwerp, 108 cs.

BASIC PAPER

Globe Shipping Co., Maine, Antwerp, 21 cs.

WRITING PAPER

P. Puttman, Maine, Antwerp, 70 cs.
Globe Shipping Co., La Savoie, Havre, 3 cs.
Coenca Morrison & Co., La Savoie, Havre, 4 cs.

COVER PAPER

International Forwarding Co., Cleveland, Hamburg, 4 cs.

PHOTO PAPER

J. J. Gavin, Samaria, Liverpool, 3 cs.

STRAW BOARD

A. Vuyk, N. Amsterdam, Rotterdam, 345 rolls.
First National Bank of Brooklyn, N. Amsterdam, Rotterdam, 307 rolls.

MISCELLANEOUS PAPER

Japan Paper Co., De Grasse, Havre, 36 cs.
G. Gennert, De Grasse, Havre, 35 cs.
Globe Shipping Co., De Grasse, Havre, 5 cs.
Japan Paper Co., N. Amsterdam, Rotterdam, 5 cs.
Perry, Ryer & Co., Athenia, Glasgow, 17 cs.
F. J. Emmerich, La Savoie, Havre, 3 bls.
H. Reeve Angel & Co., Inc., Cleveland, Hamburg, 249 rolls.

RAGS, BAGGINGS, ETC.

American Woolstock Corp., Innoko, Rotterdam, 81 bls. rags.
S. Birkenstein & Sons, Innoko, Rotterdam, 114 bls. rags.
E. J. Keller Co., Inc., Innoko, Rotterdam, 116 bls. rags.
Robert Blank, Innoko, Rotterdam, 70 bls. rags.
D. I. Murphy, Innoko, Rotterdam, 222 bls. bagging.
A. W. Fenton, Inc., Hjelmaren, Hango, 281 bls. rags.
Royal Manfg. Co., Portland Maru, Genoa, 44 bls. bagging.
Royal Manfg. Co., Portland Maru, Genoa, 52 bls. cotton waste.
A. W. Fenton, Inc., Portland Maru, Leghorn, 161 bls. rags.
Bowery East River Natl. Bank, Portland Maru, Naples, 286 bls. rags.
A. W. Fenton, Inc., Saucon, Leghorn, 209 bls. rags.
Mechanics & Metals Natl. Bank, Saucon, Leghorn, 219 bls. rags.
Southwark National Bank, Saucon, Leghorn, 88 bls. cotton waste.
E. J. Keller Co., Inc., N. Amsterdam, Rotterdam, 70 bls. bagging.
E. J. Keller Co., Inc., N. Amsterdam, Rotterdam, 311 bls. rags.
M. Maier Paper Mill Supply Co., N. Amsterdam, Rotterdam, 233 bls. rags.
The Stone Bros. Co., Inc., N. Amsterdam, Rotterdam, 64 bls. rags.
G. M. Graves Co., N. Amsterdam, Rotterdam, 100 bls. rags.
L. H. Abenheimer, N. Amsterdam, Rotterdam, 96 bls. rags.
R. F. Downing & Co., N. Amsterdam, Rotterdam, 48 bls. bagging.
A. W. Fenton, Inc., London Exchange, London, 134 bls. rags.
Myers-Lipman Woolstock Co., London Exchange, London, 19 bls. rags.
The Stone Bros. Co., Inc., London Exchange, London, 4 bls. rags.
A. H. Searle, London Exchange, London, 157 bls. rags.
Anglo-South American Trust Co., Rigel, Buenos Aires, 74 bls. rags.
Robert Blank, Oregon Maru, Hamburg, 331 bls. rags.
Castle & Overton, Inc., Londonier, Antwerp, 244 bls. rags.
L. H. Abenheimer, Andania, Hamburg, 140 bls. rags.
Robert Blank, Andania, Hamburg, 161 bls. rags.
Philadelphia National Bank, Andania, Hamburg, 107 bls. rags.
Brown Bros. & Co., Hektor, Marseilles, 21 bls. rags.
Bowery East River Natl. Bank, Hektor, Marseilles, 197 bls. rags.
A. W. Fenton, Inc., Hektor, Marseilles, 335 bls. rags.
E. J. Keller Co., Inc., Cleveland, Hamburg, 133 bls. bagging.
E. J. Keller Co., Inc., Cleveland, Hamburg, 55 bls. new cuttings.
Salomon Bros. & Co., Cleveland, Hamburg, 229 bls. rags.
Salomon Bros. & Co., Cleveland, Hamburg, 44 bls. jute waste.
Robert Blank, Cleveland, Hamburg, 51 bls. rags.
M. Kanarek, Cleveland, Hamburg, 23 bls. rags.
Darmstadt, Scott & Courtney, Cleveland, Hamburg, 29 bls. rags.
Irving Bank-Columbia Trust Co., Maine, Antwerp, 245 bls. flax waste.
E. J. Keller Co., Inc., Pennland, Antwerp, 170 bls. flax waste.
E. J. Keller Co., Inc., Cabo Tortosa, Marseilles, 76 bls. rags.
J. J. Patricof, Cabo Tortosa, Marseilles, 106 bls. rags.
A. W. Fenton, Inc., Cabo Tortosa, Marseilles, 48 bls. bagging.
A. W. Fenton, Inc., Cabo Tortosa, Marseilles, 154 bls. rags.
A. W. Fenton, Inc., Cabo Tortosa, Leghorn, 155 bls. rags.
Anglo-South American Trust Co., Sarcoxie, Bordeaux, 153 bls. jute card waste.
Salomon Bros. & Co., Sarcoxie, St. Nazaire, 45 bls. rags.
Anglo-South American Trust Co., Davisian, Liverpool, 67 bls. bagging.
Irving Bank-Columbia Trust Co., Davisian, Liverpool, 112 bls. bagging.
Brown Bros. & Co., Davisian, Liverpool, 28 bls. bagging.

OLD ROPE

W. Steck, Innoko, Rotterdam, 39 coils.
Brown Bros. & Co., N. Amsterdam, Rotterdam, 90 coils.
M. Maier Paper Mill Supply Co., N. Amsterdam, Rotterdam, 37 coils.
Brown Bros. & Co., Andania, Hamburg, 71 coils.
Brown Bros & Co., Maine, Antwerp, 56 coils.
Brown Bros. & Co., Exeter City, Bristol, 219 coils.

MANILA ROPE

Ellermans' Wilson Line, American Farmer, London, 50 coils.

WOOD PULP

Bulkley, Dunton & Co., Innoko, Rotterdam, 415 bls. wood pulp, 87 tons.
J. Anderson & Co., Natirar, Gothenburg, 2250 bls. sulphite, 457 tons.
J. Anderson & Co., Natirar, Gothenburg, 2500 bls. sulphate, 500 tons.
Atterbury Bros., Inc., N. Amsterdam, Rotterdam, 135 bls. wood pulp.
W. Hartman & Co., Inc., Oregon Maru, Hamburg, 2795 bls. wood pulp, 431 tons.
H. Hollesen, Inc., Oregon Maru, Hamburg, 773 bls. sulphite, 124 tons.
Bulkley, Dunton & Co., Oregon Maru, Hamburg, 1780 bls. wood pulp.
Nilsen, Lyon & Co., Oregon Maru, Hamburg, 311 bls. wood pulp, 48 tons.
Central Union Trust Co., Oregon Maru, Hamburg, 136 bls. sulphite, 25 tons.
J. Anderson & Co., Oregon Maru, Hamburg, 275 bls. wood pulp, 55 tons.
Castle & Overton, Inc., Maine, Antwerp, 721 bls. wood pulp.
Equitable Trust Co., Maine, Antwerp, 148 bls. wood pulp.

WOOD PULP BOARDS

Lagerloef Trading Co., Cleveland, Hamburg, 337 bls., 48 tons.

CELLULOSE WADDING

A. J. Bracher & Co., Oregon Maru, Hamburg, 513 bls., 8 tons.

(Continued on page 62)

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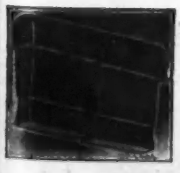

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80th St. & East End Ave., New York

Imports of Paper and Paper Stock

(*Continued from page 60*)

WOOD FLOUR

The Hansa Co., Innoko, Rotterdam, 500 bales.
The Hansa Co., Hjelmaren, Hango, 805 bags.
A. Kramer & Co., N. Amsterdam, Rotterdam, 400 bags.
B. L. Soberski, N. Amsterdam, Rotterdam, 2,000 bags.

CASEIN

National City Bank, Corsican Prince, Buenos Aires, 417 bags, 25,020 kilos.
American Exchange Natl. Bank, Rigel, Buenos Aires, 1,251 bags, 75,060 kilos.
Casein Manfg. Co., Rigel, Buenos Aires, 417 bags, 25,020 kilos.
Bank of New York & Trust Co., Rigel, Buenos Aires, 2,904 bags, 99 tons.
Bank of America, Rigel, Buenos Aires, 1,704 bags, 75 tons.
T. M. Duche & Sons, Rigel, Buenos Aires, 1,918 bags, 115,080 kilos.
Kalbfleisch Corp., Pan America, Buenos Aires, 2,084 bags.
Karolith Corp., Sarcoxie, Bordeaux, 14 bags.

CHINA CLAY

M. Snedeker Corp., Cleveland, Hamburg, 400 bags.

PHILADELPHIA IMPORTS

WEEK ENDING APRIL 17, 1926

Scandinavian Pulp Agency, Inc., Hjelmaren, Stockholm, 250 bls. wood pulp, 50 tons.
Lagerloef Trading Co., Hjelmaren, Hango, 565 rolls wood pulp boards, 56 tons.
Lagerloef Trading Co., Hjelmaren, Hango, 114 bls. wood pulp boards, 16 tons.
Paper House of Penna., Hjelmaren, Hango, 174 cs. printing paper.
Neidich Process Co., Hjelmaren, Hango, 114 cs. tissue paper.
Brown Bros. & Co., London Exchange, London, 15 bls. rags.
S. Birkenstein & Sons, Oregon Maru, Hamburg, 56 bls. rags.
Brown Bros. & Co., Oregon Maru, Hamburg, 418 bls. rags.
L. H. Abenheimer, Oregon Maru, Hamburg, 214 bls. rags.
Philadelphia National Bank, Oregon Maru, Hamburg, 59 bls. rags.
A. W. Fenton, Inc., Oregon Maru, Hamburg, 147 bls. rags.
Robert Blank, Oregon Maru, Hamburg, 95 bls. rags.
Castle & Overton, Inc., Oregon Maru, Hamburg, 115 bls. rags.
E. J. Keller Co., Inc., Hektor, Marseilles, 638 bls. rags.
Brown Bros. & Co., Hektor, Marseilles, 163 bls. rags.
Amsinck, Sonne & Co., Inc., Hektor, Marseilles, 116 bls. rags.
New York Trust Co., Hektor, Marseilles, 131 bls. rags.
A. W. Fenton, Inc., Hektor, Marseilles, 111 bls. rags.
New York Trust Co., Hektor, Barcelona, 285 bls. rags.
E. J. Keller Co., Inc., Hektor, Barcelona, 361 bls. rags.
E. J. Keller Co., Inc., Corson, Genoa, 78 bls. rags.
E. J. Keller Co., Inc., Western Plains, Rotterdam, 299 bls. rags.
E. J. Keller Co., Inc., Western Plains, Amsterdam, 133 bls. rags.
E. J. Keller Co., Inc., J. L. Luckenbach, Kobe, 500 bls. rags.
H. Hollesen, Inc., Holstein, ———, 260 bls. sulphite pulp, 52 tons.
Bulkley, Dunton & Co., Crefeld, ———, 275 bls. wood pulp.
Bulkley, Dunton & Co., Korsholm, ———, 250 bls. wood pulp.
Bulkley, Dunton & Co., Trolleholm, ———, 500 bls. wood pulp.
Bulkley, Dunton & Co., West Campgaw, ———, 840 bls. wood pulp.
Robert Blank, Holstein, Hamburg, 174 bls. rags.
Robert Blank, Holstein, Bremen, 56 bls. rags.
Castle & Overton, Inc., Nessian, Rotterdam, 575 bls. rags.
Castle & Overton, Inc., Nessian, Antwerp, 64 bls. rags.
Castle & Overton, Inc., Nessian, Antwerp, 367 bls. wood pulp.
Castle & Overton, Inc., ———, Belgium, 1355 bls. wood pulp.
Castle & Overton, Inc., ———, Germany, 106 bls. rags.
Castle & Overton, Inc., Eastern Dawn, Rotterdam, 871 bls. wood pulp.
Castle & Overton, Inc., Luxpalile, Italy, 171 bls. rags.
Castle & Overton, Inc., Western Plains, Antwerp, 73 bls. rags.
Castle & Overton, Inc., Holstein, Hamburg, 177 bls. rags.
Castle & Overton, Inc., Alberta, Austria, 120 bls. rags.
Castle & Overton, Inc., Alaska, Havre, 38 bls. rags.

BOSTON IMPORTS

WEEK ENDING APRIL 17, 1926

Parsons & Whittemore, Inc., Hjelmaren, Hango, 600 bls. news print.
Baring Bros. & Co., Ltd., Portland Maru, Leghorn, 26 bls. rags.
Brown Bros. & Co., Portland Maru, Naples, 267 bls. rags.
Kalbfleisch Corp., Rigel, Buenos Aires, 1094 bags casein, 143,387 kilos.
T. M. Duche & Sons, Rigel, Buenos Aires, 417 bags casein, 25,020 kilos.
First Natl. Bank of Boston, Hesione, Buenos Aires, 834 bags casein, 50,040 kilos.
Robert Blank, West Campgaw, Bremen, 116 bls. rags.
Robert Blank, Aden Maru, Hamburg, 61 bls. rags.
Castle & Overton, Inc., ———, Antwerp, 534 bls. wood pulp.
H. Hollesen, Inc., Lorain, ———, 405 bls. sulphite pulp, 81 tons.
E. J. Keller Co., Inc., Lorain, Hamburg, 305 bls. rags.
E. J. Keller Co., Inc., Napierian, Antwerp, 35 bls. rags.
E. J. Keller Co., Inc., West Campgaw, Hamburg, 39 bls. rags.
E. J. Keller Co., Inc., West Campgaw, Hamburg, 129 bls. bagging.

BALTIMORE IMPORTS

WEEK ENDING APRIL 17, 1926

Castle & Overton, Inc., ———, Antwerp, 1361 bls. wood pulp.
H. Hollesen, Inc., Holstein, ———, 525 bls. sulphite, 105 tons.
Bulkley, Dunton & Co., Crefeld, ———, 275 bls. wood pulp.
Bulkley, Dunton & Co., Maryland, ———, 1050 bls. wood pulp.
Bulkley, Dunton & Co., Svarten, ———, 2000 bls. wood pulp.
Bulkley, Dunton & Co., West Inskip, ———, 1722 bls. wood pulp.

PORTLAND, ME., IMPORTS

WEEK ENDING APRIL 17, 1926

Bulkley, Dunton & Co., West Celina, ———, 2500 bls. wood pulp.

NEW ORLEANS IMPORTS

WEEK ENDING APRIL 17, 1926

Castle & Overton, Inc., Spaarndam, Rotterdam, 180 bls. rags.
Castle & Overton, Inc., West Erral, France, 366 bls. rags.

Activities of the Paper Section at Washington

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 21, 1926.—Studies of the effect of changing moisture conditions upon the dimensions of paper have been recently conducted by the Paper Section of the Commerce Department's Bureau of Standards. In connection with those studies tests were made with a commercial instrument designed to measure the changes. Data are being secured by the Section on various papers under the following conditions: 65 per cent relative humidity, 100 per cent relative humidity, immersed in water, and in a dry atmosphere. Considerable modification of the instrument was necessary to make such determinations possible.

A report containing proposed Federal Specifications Board Specifications for fiber wall board, together with a detailed discussion of the various points involved, has been prepared by the Paper Section and forwarded to manufacturers and others interested in their comments. Several replies have been received, these in the main showing a favorable attitude toward the proposed specifications.

A report including proposed specifications for window-envelope windows has been prepared and forwarded to manufacturers, associations, the Post Office Department and others interested. In view of the comments received some additional data are being secured.

The Paper Section has prepared an exhibit for the Philadelphia Sesquicentennial Exposition. Photographs of paper mill equipment were made and samples of all papers produced were prepared to illustrate the researches on fibrous raw materials and paper-making processes. Testing instruments devised in the section were also photographed to show the work on development of test methods. Plans were also prepared to enable the construction of an air-conditioned testing cabinet which is to be exhibited.

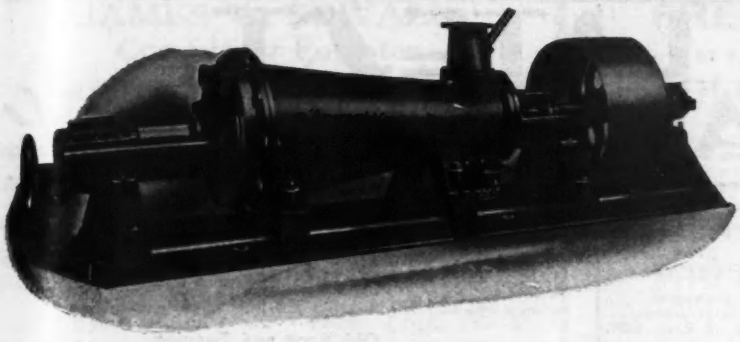
Suits Against Fried Paper Stock Co. Settled

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, April 20, 1926.—The $25,000 damage suit of Maurice O'Neill of this city against the Fried Paper Stock Company of Hamilton, and the $10,000 suit of Orin Will against the same company, were compromised and settled in the Common Pleas court last Saturday in Hamilton, for $2,500.

The Will case was once tried and the jury gave the defense the verdict, but the case was carried to the Supreme Court, which ordered a re-trial. The case had been called for a hearing before Judge Walter S. Harlan when the compromise was reached.

Dayton attorneys represented Maurice O'Neill who claimed $25,000 for injuries sustained when he was struck by the defendant's truck and for damages to his car sustained in a collision in Butler county.



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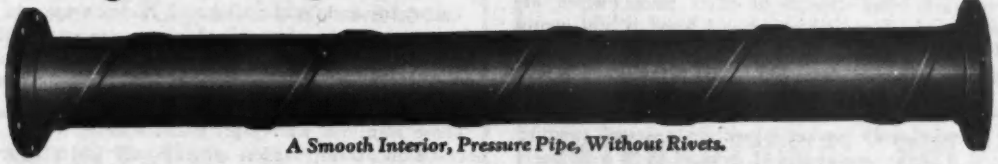

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New York Market Review

Office of THE PAPER TRADE JOURNAL,
Wednesday, April 21, 1926.

While trading in the local paper market has quietened down somewhat after the early spring activity, manufacturers and dealers are expressing their satisfaction at the volume of business being transacted at this time. Prices for the various grades of paper are being well maintained and there is little evidence of shading. Sales organization of the leading paper houses remain keyed up to the highest state of efficiency and no slackening of effort is looked for in the immediate future.

News print continues in steady demand and advertising and circulation figures continue to grow. Shipments of news print on contract are moving at an excellent rate and the spot market is also showing signs of activity. According to figures compiled by "The New York Evening Post" there were 107,327,000 agate lines of advertising in the newspapers of 23 principal cities of the United States during February, 1926, compared with 100,580,000 lines during February, 1925, an increase of 7 per cent and 103,934,000 lines in February, 1924, an increase of 3 per cent. There was an increase of 8 per cent during the first two months of 1926 over 1925 and 7 per cent over 1924.

New York city newspapers carried about 10 per cent more advertising in first three months of 1926 than in the first three months of 1925 and 10 per cent more than in same period of 1924. There was 11 per cent more pages of advertising and reading matter in these papers in first three months of 1926 than in these months of 1925. Advertising in national monthly and weekly periodicals for first three months of 1926 amounted to 6,294,000 agate lines compared with 5,734,000 lines in first three months of 1925, a gain of 12 per cent and 6,899,000 lines in first three months of 1920, a loss of 7 per cent.

Orders for the various grades of paper boards are fairly numerous and the demand for spot supplies is about normal. The fine paper market continues to exhibit a strong tendency and prices remain steady. Tissues are still in good request at firm prices. The coarse paper market is in a sound condition and the demand for wrapping paper remains persistent. Due to the increasing price of casein there is some talk of advanced prices for coated paper in the near future.

Mechanical Pulp

No radical changes have taken place in the ground wood market of late. Production is reported to be expanding, but accumulations are not yet heavy enough to affect prices, which are practically unchanged. Scandinavian ground wood is still quoted at from $40 to $45 a ton, ex dock, and domestic and Canadian mechanical pulp is selling at from $30 to $33 a ton, at pulp mill.

Chemical Pulp

While the chemical pulp market is still in a sound position, there has been a slight weakening of prices. Many consumers appear to be awaiting the opening of navigation in the Baltic, which will probably take place very shortly, in the expectation that there will soon be enough Swedish pulp to take care of all requirements. The current demand seems to be confined to immediate needs. Imported bleached sulphite is now quoted at from 3.75 to 4.50 cents a pound, and domestic bleached sulphite at from 3.75 to 4.75 a pound. Mitcherlich unbleached, No. 2 strong unbleached and No. 1 kraft are also slightly easier.

Old Rope and Bagging

Although the consuming demand for old rope has been light, it has been quite sufficient to absorb the offerings in the market. Prices remain steady and unchanged. Quietness prevails in the bagging market. A good volume of inquiries are being received, however, for future business, and there are indications of a general improvement in the situation in the course of the next few weeks.

Rags

The demand for rags is still below normal, but it is confidently predicted that a more urgent request will develop shortly, as the paper mills are expected to replenish their stocks for the summer production in the immediate near future. Roofing rags are only in moderate demand at present, although prices have declined to a point where they should prove very attractive to the consumer. Quotations on imported rags are also lower, and are beginning to attract more attention than for some time.

Waste Paper

Board mill inquiry for the lower grades of waste paper is becoming more persistent, influenced by the lower prices which have prevailed recently. Should the demand increase to any great extent, higher prices may be looked for. Not much interest is apparently being taken in the higher grades of waste paper at the present time, although prices are fairly reasonable for the time of the year.

Twine

Influenced by the continued good demand for wrapping paper, the twine market exhibits a strong tendency. Prices are being well maintained and the outlook for the immediate future is very promising.

T. T. Webster Heads Traffic Clubs

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, April 20, 1926.—Thomas T. Webster, general manager of the G. H. Mead Paper Company of this city, was elected president of the Associated Traffic Clubs of America at the annual convention held in Dallas, Texas, last Wednesday.

Mr. Webster succeeds Henry Palmer of Chicago, and his selection is a matter of pride to Miami Valleyans who are familiar with the formation of the organization.

The Associated Traffic Clubs of America was the culmination of a movement in which Mr. Webster was one of the initiators, and probably one of the most aggressive in the country. The object of the Association is to obtain co-ordinated action on transportation issues facing various individual clubs of the country.

Those identified with paper manufacturing realize the importance of the transportation question and its many ramifications. Mr. Webster stated that political rate-making was denounced in a resolution offered by him, and another resolution was adopted asking for some form of settlement of railroad labor disputes.

F. A. Doebber, Indianapolis, Ind., was elected secretary of the Association, and W. T. Vandenburg, Louisville, Ky., treasurer.

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Miscellaneous Markets

Office of THE PAPER TRADE JOURNAL,
Wednesday, April 21, 1926.

Trading in the local chemical market during the past week continued along routine lines. Spot sales were generally limited to small purchases. Regular contract shipments are moving in good volume. Production is not in excess of the prevailing consumption and surplus stocks are not accumulating to any extent. Prices of most chemicals are ruling steady and schedules are being well maintained.

BLANC FIXE.—Demand for blanc fixe is fairly satisfactory and a steady inquiry is developing for both the pulp and the powder for prompt delivery. Prices remain unchanged at recently quoted levels. The pulp is still selling at from $53 to $55 per ton, in bulk, and the powder is quoted at from 3¾ to 4¼ cents a pound, in barrels, at works.

BLEACHING POWDER.—The tone of the bleaching powder market is steady. Contract shipments have been heavy during the week and continue to move at a regular pace. Prices are holding up very well. Bleaching powder is quoted at from $2 to $2.40 per 100 pounds, in large drums, at works.

CAUSTIC SODA.—Contract withdrawals of caustic soda have been well up to average. Consumption is large and production is being well maintained. The spot market is more active and sales have been in excess of last year. Quotations on caustic soda range from $3.10 to $3.15 per 100 pounds, at works. Spot car lots are quoted at from $3.20 to $3.25 per 100 pounds.

CASEIN.—While spot supplies of casein are rather scarce, the situation has improved somewhat, and prices of both the coarse and the fine ground are lower. Imported casein is now selling at from 16 to 17 cents a pound, and domestic casein at from 14 to 17 cents, all in bags, according to grade.

CHINA CLAY.—The china clay market is exhibiting a firmer tone. The demand for the imported material is steady and prices are holding up very well. Contract withdrawals of domestic clay are reported to be moving in good volume. Domestic washed clay is still selling at $8 a ton, at mine, and pulverized at $10 a ton. Foreign china clay is quoted at from $13 to $22 a ton, ship side.

CHLORINE.—Consumption of chlorine continues to increase and production is also proceeding at a satisfactory pace. Withdrawals on contract have been quite up to the average and prices are being well maintained. The quotation on chlorine is still 4 cents a pound, in tanks or multi-unit cars, at works, on contract orders. The spot quotation is about half a cent higher.

ROSIN.—No radical changes have taken place in the rosin market and the demand is still confined to immediate requirements. Prices remain as previously quoted. At the naval stores, the grades of rosin used in the paper mills are offered at from $11.10 to $13.50 per 280 pounds, ship side, in barrels.

SALT CAKE.—Steadiness continues to prevail in the salt cake market. Shipments on contract are moving in good volume and prices are holding up very well. The spot demand is also fairly good, while stocks are ample to meet the prevailing request. Salt cake is still selling at from $17 to $20 a ton, in bulk, at works.

SODA ASH.—The soda ash market is in a sound condition. Contract withdrawals are proceeding on a large scale and consumption is very heavy. Plants are reported to be operating at full capacity. The spot business is much better than a year ago. Contract quotations, in car lots, at works, per 100 pounds, range as follows: In bulk, $1.25; in bags, $1.38; and in barrels, $1.63.

STARCH.—Paper makers' starch continues in good demand and consumption appears to be expanding. Production is being maintained in good volume and prices are holding up in a satisfactory manner. Special paper makers' starch is selling at $3.32 per 100 pounds, in bags, and at $3.49 per 100 pounds, in barrels.

SULPHATE OF ALUMINA.—Keen competition is being experienced in the sulphate of alumina market and prices are rather unsettled. The domestic product is moving steadily to consumers on contract. Sulphate of alumina is quoted at from $2 to $2.05 per 100 pounds, for the iron free, in bags, at works, in car lots, and at from $1.40 to $1.45 for the commercial grades.

SULPHUR.—The demand for sulphur is persistent. Shipments against contract are normal and prices are practically unchanged. The quotation on the grades of sulphur used by the paper mills ranges from $14 to $15 a ton, in bulk, at mine, and at from $20 to $21 a ton, ship side.

TALC.—A strong tendency continues to prevail in the talc market. The demand for talc is fairly heavy and shipments on contract are moving in excellent volume. American talc is quoted at from $16 to $18 a ton, at eastern mines, and at from $17 to $25 a ton, at western mines. French talc is still selling at from $18 to $22 a ton, in bags.

Civic Clubs Inspect Ohio Paper Plants

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, April 20, 1926.—Members of the Commonwealth club of Hamilton departed from their usual custom of holding their dinner at the Y. M. C. A. Wednesday evening in Hamilton and dined at the Champion Coated Paper Company's cafeteria.

Following the dinner, the club made an inspection tour of the Champion plant with Homer Ferguson and Raymond Steffen acting as guides. The club eliminated its business session, the members having been engrossed in the process of manufacturing coated paper and the methods employed by the firm in conducting its business.

Civic clubs in various Miami Valley mill centers have evinced keen interest in the operation of paper plants for some time. During the past week members of the Xenia Rotary club were guests of W. W. Galloway, general manager of the Hager Straw Board and Paper Company, at Cedarville, near Xenia, at a dinner given at the Cedarville Exchange bank building.

Mr. Galloway addressed the Rotarians and explained the history of the paper plant which has figured prominently in the commercial progress of Cedarville and Green county. The Cedarville college students furnished the music. Club members later were taken on a tour of inspection of the Hager paper mills.

Bids for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 21, 1926.—Postmaster General New announced today that bids will be opened in the Office of the Purchasing Agent of the Post Office Department on May 10, 1926, for furnishing approximately 200,000,000 envelopes of various sizes and grades for the use of the several executive departments and the independent establishments of the Government. The contract is for one year, beginning July 1, 1926.

It was also announced that bids will be opened on April 23, 1926, for furnishing 140,000,000 envelopes for the use of the postal service alone. This contract also runs for one year, beginning with July 1, next.

The Government Printing Office will receive bids on April 26 for 36,000 pounds, 20,000 sheets of various sizes No. 2 binders board.

Fox River Valley Flood Danger Checked

PORTAGE, Wis., April 19, 1926.—The swollen waters of the Wisconsin River were successfully checked with two massive wooden gates, thus protecting the Fox River Valley from a flood that was believed imminent on Saturday night, when a 75 foot section of wooden wall in the Portage Canal locks collapsed.

Crown-Willamette Buys Timber Tract

PORTLAND, Ore., April 19, 1926.—The Crown-Wilamatte Paper Company has just purchased a 250-acre tract of spruce timber at Lake Tackenitch, in Coos County, Oregon, for $39,000. The company is now logging a fifty million-foot tact at Lake Siltcoos, with a few further extending operations in that region.